DOCUMENT RESUME

ED 130 575 HE 008 336

AUTHOR Blackburn, Robert; And Others
TITLE Changing Practices in Undergraduate Education. A Report for the Carnegie Council on Policy Studies in Higher Education.
INSTITUTION Carnegie Council on Policy Studies in Higher Education, Berkeley, Calif.
PUB DATE 76
NOTE 62p.
AVAILABLE FROM Carnegie Council on Policy Studies in Higher Education, 2150 Shattuck Avenue, Berkeley, Calif. 94794 ($4.00)

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS Academic Education; Associate Degrees; Bachelors Degrees; Catalogs; *College Credits; *College Majors; College Students; Courses; Curriculum; *Curriculum Development; Curriculum Research; *Degree Requirements; General Education; *Higher Education; Program Content; Specialization; *Undergraduate Study

ABSTRACT

Curriculum, in its most common meaning, is a set of requirements that constitute an academic program. This study is concerned with what has been happening to undergraduate education in the United States in terms of curriculum. Phase I of the study examines degree requirements in 1967 and 1974 with regard to the specified minimum number of credit hours and the proportion of overall degree requirements that represent breadth and depth; the proportion of a degree represented by general education; the structure of the general education component; the content; and some of the historically basic components of general education. The major or depth component of a degree is examined with respect to the number of courses required for the major, their structure, and content. Differences among institutions are analyzed by institutional type or level, selectivity of students, and public or private control. Phase II employs transcript analysis for a selected number of institutions to determine the extent to which student course-taking actually agreed with the requirements stated in the catalogs, and to ascertain whether there had been a change since 1967 in the extent of student specialization. The findings indicated a minor decrease in number of required hours, which was accompanied by an appreciable shift toward specialization, as demonstrated by the increase in number of electives chosen by students in their field of concentration. (JMF)

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ED130575

Changing Practices in Undergraduate Education

A Report for the Carnegie Council on Policy Studies in Higher Education

Robert Blackburn
Ellen Armstrong
Clifton Conrad
James Didham
Thomas McKune

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
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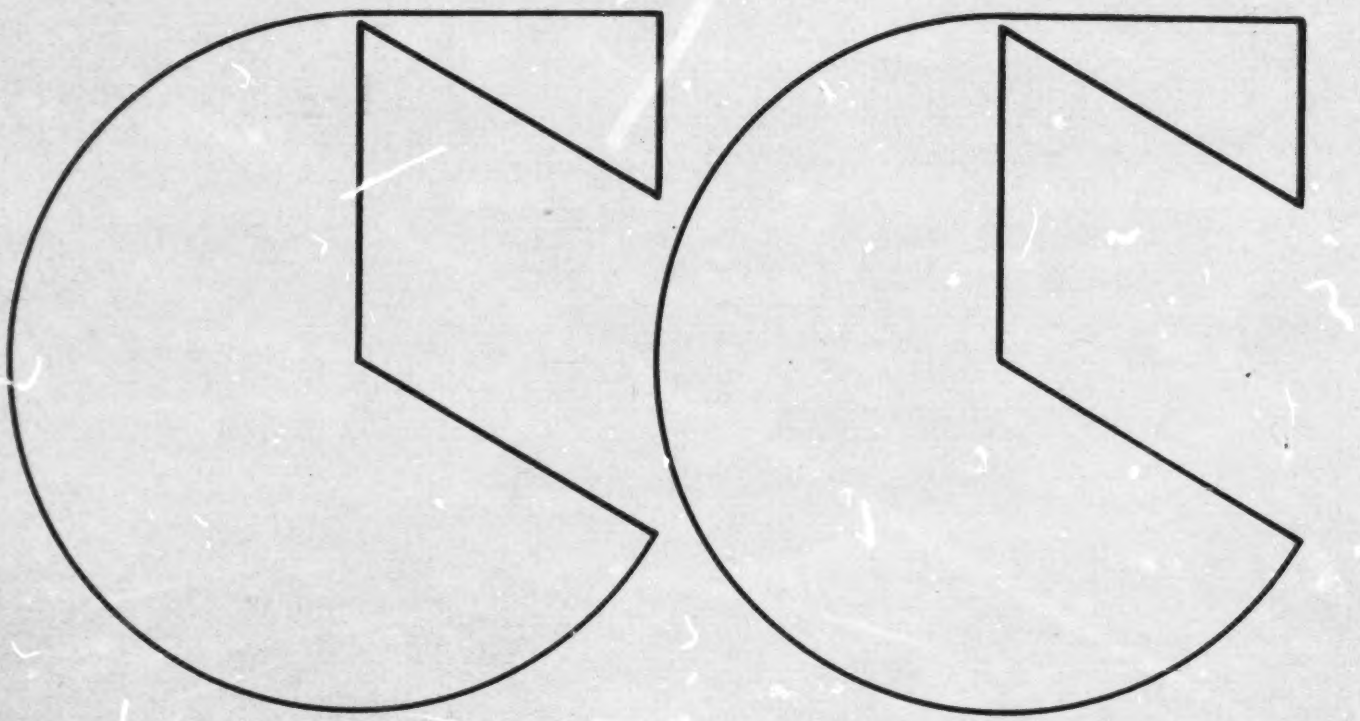

HE 008 556

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A REPORT FOR THE
CARNEGIE COUNCIL ON POLICY STUDIES
IN HIGHER EDUCATION

CHANGING PRACTICES IN UNDERGRADUATE EDUCATION

Robert Blackburn, Ellen Armstrong, Clifton Conrad, James Didham, and Thomas McKune

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The Carnegie Council on Policy Studies in Higher Education, 2150 Shattuck Avenue, Berkeley, California 94704, has sponsored preparation of this report as part of a continuing effort to obtain and present significant information for public discussion. The views expressed are those of the authors.

Copies are available from the Carnegie Council office.

Library of Congress Catalogue Card Number 76-17441

Manufactured in the United States of America

FOREWORD

Once one gets past the many generalities on the subject, one of the empirical questions to be asked about the undergraduate curriculum is: What does it consist of now? The next one is: Does this represent a change from the past? And the third one, for many of us, is: What will the curriculum be like in the future?

In this particular study, Robert Blackburn and his associates at the University of Michigan have been basically concerned with the first two of these questions, and their work will make a very useful contribution to the concerns of the Carnegie Council on Policy Studies in Higher Education and The Carnegie Foundation for the Advancement of Teaching for the third question.

With respect to what the curriculum consists of now, it is fair to say that the study reveals no single dominant pattern. The vaunted diversity of American higher education may be nowhere more evident than in the college curriculum, both as it is advertised and as it is used. And while there is solid evidence of change—at least between 1967 and 1974—it does not appear to be going in any specifically targeted direction. Instead, the change appears to involve increasing specialization, at least within the arts and sciences that are the focus of the study, and, inevitably, an erosion of the cohesion that "general education" has been called upon to impose on the undergraduate curriculum since the turn of the century.

For documenting these developments and for helping to set the stage for further empirical studies in this difficult field, we extend to the authors our deep appreciation.

CLARK KERR

Chairman
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Changing Practices in Undergraduate Education
Robert Blackburn, Ellen Armstrong, Clifton Conrad, James Didham, Thomas McKune

PREFACE

Before policies regarding undergraduate degree requirements can be advanced, an accurate reading of recent and current practices is necessary. There does seem to have been radical change in college and university curricula (which some champion and others bemoan), but evidence has been lacking as to the extent and kind of change. Researchers Dressel and DeLisle (1969), for example, set out to document curricular change between 1957 and 1967, but found very little when it came to degree requirements. Hence, if there has been appreciable change, it must have occurred since 1967, an interval for which we have no evidence.

This study systematically examines the extent and kind of curricular change in a random sample of the U.S. colleges and universities. It is the first such investigation to include two-year colleges and to ascertain actual student practice in course-taking. The study deals with changing degree requirements; the amount, structure, and content of general education; the major, in selected disciplines; and the amount and use of electives. Both catalogs and transcripts were analyzed, and checks and comparisons were made between institutionally stated requirements and actual student course-taking behavior.

Acknowledgments

To accomplish the study's ends, it was necessary to have the assistance and cooperation of a large number of people. We are grateful to the colleges and universities that participated in our survey, and we wish to thank them for their assistance. Many institutional documents (such as curriculum-committee reports, task force proposals, faculty-meeting debates, and special brochures) were supplied to us in addition to the catalogs we requested. Even the latter request caused inconveniences to some institutions; 1966-67 announcements, in particular, were not always readily available.

We are especially indebted to individuals at the ten colleges and universities who aided us in the transcript analyses. Academic administrative officers, their delegates, and officials in records offices gave generously of their time. Others accorded us extended interviews as we probed to understand the dynamics of curricular change at their institution. In accord with our initial agreement with each institution, they—like their college or university—remain anonymous. Nonetheless, we wish to express our gratitude to them.

We thank our Center colleagues for their frequent and constructive critiques. Others also responded to a request for improving the document, especially Bob Pace and Bud Warren. Karen Seriguchi assisted in the final editing. Sylvia Ellis provided exceptional assistance throughout the project.

ROBERT BLACKBURN,
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CLIFTON CONRAD, JAMES
DIDHAM, THOMAS McKUNE

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Clark Kerr

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History and Overview

Probably the most common meaning given to *curriculum* is the functional one, namely, a set of requirements—almost always specified as a collection of courses—that constitute an academic program. For a college or university degree, for example, the curriculum is the set of courses or credit hours an institution requires a student to take in order to graduate.

Sanford (1962) and Chickering (1972) define the curriculum as the total set of experiences a student has from matriculation to the baccalaureate. This includes experiences outside the classroom in addition to the strictly academic aspects of college life. Typical of those who talk about curriculum in this larger sense is a belief in the importance of the education of the whole person, of the growth and development of the student along dimensions other than those that are purely intellectual or that involve the acquisition of skills.

In still another sense, *curriculum* can represent a philosophical expression of what a college or university stands for (see Clark, 1970). From this perspective, a curriculum is more than a sum of courses and out-of-class experiences. It represents what a faculty believes is important in terms of an educated individual. An institution whose entire curriculum is required holds a very different value set from an institution whose curriculum has no specifications.

The studies conducted for this report treat curriculum largely in the first of the three ways just described. Courses and requirements receive principal attention. The analyses do not treat noncourse experiences, nor do they probe the philosophical positions of faculty. Chapter 5, however, takes into account the larger meaning of curriculum and examines some of the consequences of structuring a curriculum in different ways.

Historical Background

Among others, Butts (1939), Brubacher (1965), Brubacher and Rudy (1968), and Handlin and Handlin (1970) have traced higher education curricula in this country.[1] The Harvard Committee (1945), the Chicago group (*The Idea and Practice of General Education,* 1950), Rudy (1960), Thomas (1962), Bell (1966), and Blackburn (1967) have given special attention to the general, or liberal, education component, especially as it has evolved during this century.[2] More recently, Ashby (1971), Ben-David (1971),

[1]Inasmuch as Frederick Rudolph is preparing a history of the curriculum in American higher education for the Carnegie Council, this section shall be brief.

[2]As do many writers in the field—as well as catalog authors—we tend to use the terms *general* and *liberal* education as exchangeable equivalents. They refer to the nonspecialized breadth component of the degree as contrasted with the field of concentration, or depth component of the degree, that is, the major. We do regard liberal education as the broader term and consider the general education movement of this century a particular form of liberal education.

and Touraine (1974) have each illuminated the development of undergraduate education in this country from a non-U.S. perspective.

These works document the common classical curriculum of this country's founding colleges and its gradual and uneven development. The trivium and quadrivium, the later classical curriculum, and requirements of Latin and Greek changed slowly. Science worked its way into the curriculum and, later, a major movement by Eliot at Harvard led to the introduction of electives, that is, course options without restriction. From the late nineteenth century, prescribed programs and free student choice have competed for dominance in the curriculum, and one or the other has risen or fallen in a pattern not yet fully understood.

Disenchantment with an elective system that made it possible for students to avoid studying what many thought essential for the transmission of culture and for a basic understanding of the humanities, natural sciences, and social sciences led places like Columbia, Chicago, and (a little later) Harvard to design special programs of liberal general education. The argument for a common core of courses was strengthened by World War II and the ensuing rapid enrollments from segments of the population that had not traditionally gone on to higher education. Colleges and universities modeled programs after the innovators or constructed ones for themselves. The emphasis on the liberal component of the degree became known as the general education movement, a phenomenon that has waxed and waned and taken on a wide variety of forms.

In the middle 1960s, not long after two apparently contrary forces came into play—namely, a concern for students as people and a concern for academic rigor and the need for scientists—investigations were conducted to ascertain what the curricula of colleges and universities in this country actually were. Most commentators were certain that the curriculum was changing rapidly at this time (see, for example, Bok, 1974), and they questioned only the extent and consequences of these changes.

However, the inquiries launched by Haswell and Lindquist (1965), Dressel and DeLisle (1969), and Brick and McGrath (1969) did not confirm the contentions of higher education pundits. These authors found surprisingly little change in degree specifications (although they did note more ways of satisfying the specifications). But the failure of these investigators to substantiate curricular change did not stop higher educational spokesmen from claiming that it had occurred. Moreover, questions about the undergraduate curriculum that were not covered in the reports remain. This study was designed to test the degree of truth the many claims have in fact.

The Research Questions

The basic question this study asks is: What has been happening to undergraduate education in the United States?

Some answers were available from an analysis of college and university catalogs. In this portion of the study, Phase I, we examined degree requirements in 1967 and 1974 with regard to "amount"—that is, the specified minimum number of credit hours—and the proportions of overall degree requirements that represented breadth (general, liberal education) and depth (major and/or concentration).

In Phase I we also looked at the proportion of a degree represented by general education; the structure of the general education component (required courses versus distribution requirements versus free choice); the content (proportions of the general education requirements in the humanities, natural sciences, and social sciences); and some of the historically basic components of general education—English, foreign languages, and mathematics.

Similarly, the major, or depth component of a degree, was examined with respect to the number of courses required for the major, and their structure and content. We also focused on electives, particularly on how many were available after requirements had been met. Finally, we analyzed the differences between institutions when classified by type (two-year colleges, four-year colleges, and universities—comprehensive, doctoral-granting, and research), by selectivity of students, and by public or private control.

Phase II of this study employed transcript analysis for a selected number of institutions. The actual programs of graduates of six arts and sciences departments at ten colleges and universities in 1967 and 1974 were examined. The principal goals in Phase II were to determine the extent to which student course-taking

actually agreed with the requirements stated in the official announcements of colleges and universities, and to ascertain whether there had been a change since 1967 in the extent of student specialization. That is, did students use their electives (those existing in 1967, plus any additional ones from curriculum changes) to broaden their education, or did they take additional work in their area of specialization?

Other Questions and Some Limitations

- Many observers have raised concerns about the diversity of higher education (see, for example, Hodgkinson, 1971; and Pace, 1972; 1974)—that is, whether institutions are becoming more alike in their curricular offerings and, thus, whether students have as diverse a college market from which to select as they did in the past.
- In periods of budgetary constraint, important questions arise as to who actually "controls" a curriculum. Who sets requirements, who determines what courses will be offered and when, and who makes staffing decisions?
- Many educators have written about the influence of one institution on another, on typologies of general education, and on the roles of innovators and traditionalists. While our analyses do not give clear answers to these questions, some trends and implications emerge from our findings.
- A limitation of this study, perhaps, is that no universally accepted curriculum theory guided our investigation. A few have written on a theoretical framework for curriculum analysis (see Dressel, 1971; Ford and Pugno, 1964; King and Brownell, 1966; and Posner, 1974), but their conceptualizations have not been tested.[3] The analyses in this inquiry are essentially empirical; preliminary outcomes directed subsequent analyses.
- Last, it should be noted that the study does not deal with teaching or other kinds of education processes, but rather assumes that the meeting of requirements, irrespective of mode, produces essentially identical outcomes. The truth of this premise is simply not known. It is certainly not believed by those who prof und and proceed on quite diverse set of educational practices.

[3]A search through ERIC reports, *Dissertation Abstracts*, and journals produced no major curriculum study in the last five years.

2

The Curriculum as Described by Institutions

Several factors must be considered when selecting a manageable sample of colleges and universities to capture accurately both the kind and the degree of curricular change that occurred in this country between 1967 and 1974. First of all, previous studies show that one institution can differ from another in the way its faculty behave, in the abilities of its students, in the performance of its graduates on advanced examinations, and on many other dimensions. There are compelling reasons for expecting institutions to differ with respect to their curricula and to the kinds of changes made within them.

But problems quickly arise in selecting a sample because institutions in typical categories (comprehensive universities, two-year colleges, and so on) are neither equal in number nor evenly distributed geographically. Nor are students distributed uniformly across institutional categories. Many state institutions have enrollments over 20,000, while the modal liberal arts college (private) is about 20 times smaller.

In addition, over the seven-year study period, some institutions changed type (from two-year to four-year, for example), and others underwent a change in control (from private to public). Furthermore, some observers argue that religious affiliation is an important variable in sample selection; others hypothesize different outcomes on the basis of the sexual composition of the student body; some want to control for primary racial composition of the student body; still others argue the importance of regional accreditation standards. The list is lengthy.

Sample Selection

Although there was neither a defensible theoretical model nor highly persuasive evidence to guide our sampling procedures, it was our feeling that the nature and degree of the institutions' selectivity may have influenced how they had changed. For example, the bachelor of arts program at a large university, perhaps serving as a "feeder" into diverse graduate programs, might not have been as able to change as the program at a small, independent liberal arts college. We therefore decided to sample by "Carnegie" types.[1] This schema generates five major institutional categories: research universities, other doctoral-granting universities, comprehensive universities and colleges, liberal arts colleges, and community colleges.[2] The first four classes were each split into two groups on a

[1] See *A Classification of Institutions of Higher Education* for details of the Carnegie typology (Carnegie Commission on Higher Education, 1973a, pp. 6-7).

[2] Carnegie classifies these as two-year institutions, but separates them from another category, specialized institutions, some of which are two-year institutions. This study did not include the specialized category comprising 421 institutions (14.9 percent of the 2,827 classified institutions). The specialized category, however, enrolls only 3.4 percent of the nation's students.

student-selectivity basis, thereby generating nine categories. Each cell was then divided once again by type of control (public or private) to produce 18 categories. Table 1 shows the number of institutions in each category, and Table 2 displays their enrollments.

Table 1. Number of higher education institutions in the United States, 1970, by Carnegie type and control

Type of institution	*Public*	*Private*	*Total*	*Percent public*	*Percent of total*
Total[a]	1,313	1,514	2,827	46.4	100.0
Doctoral-granting institutions	108	65	173	62.4	6.1
Research universities I	30	22	52	57.7	1.8
Research universities II	27	13	40	67.5	1.4
Doctoral-granting universities I	34	19	53	64.2	1.9
Doctoral-granting universities II	17	11	28	60.7	1.0
Comprehensive universities and colleges	308	145	453	68.0	16.0
Comprehensive universities and colleges I	223	98	321	69.5	11.4
Comprehensive universities and colleges II	85	47	132	64.4	4.7
Liberal arts colleges	28	691	719	3.9	25.5
Liberal arts colleges I	2	144	146	1.4	5.2
Liberal arts colleges II	26	547	573	4.5	20.3
Two-year institutions	805	256	1,061	75.9	37.5
Specialized institutions	64	357	421	15.2	14.9

[a]Excludes extension enrollment; items may not add to subtotals because of rounding.

Source: Carnegie Commission on Higher Education (1973a, pp. 6-7).

Table 2. Enrollment in higher education institutions in the United States, 1970, by Carnegie type and control

Type of institution	*Public*	*Private*	*Total*	*Percent public*	*Percent of total*
Total[a]	6,350.0	2,150.0	8,500.0	74.2	100.0
Doctoral-granting institutions	2,012.9	665.0	2,677.9	75.2	31.5
Research universities I	846.0	254.3	1,100.3	76.9	12.9
Research universities II	498.9	112.0	610.9	81.7	7.2
Doctoral-granting universities I	421.1	220.4	641.5	65.6	7.6
Doctoral-granting universities II	246.9	78.3	325.2	75.9	3.8
Comprehensive universities and colleges	1,978.7	522.7	2,501.4	79.1	29.4
Comprehensive universities and colleges I	1,666.1	433.2	2,099.3	79.4	24.7
Comprehensive universities and colleges II	312.6	89.5	402.1	77.7	4.7
Liberal arts colleges	38.5	647.4	685.9	5.6	8.1
Liberal arts colleges I	5.9	180.0	185.9	3.2	2.2
Liberal arts colleges II	32.6	467.4	500.0	6.5	5.9
Two-year institutions	2,214.0	133.8	2,347.8	94.3	27.6
Specialized institutions	106.5	180.3	286.8	37.1	3.4

[a]Excludes extension enrollment; items may not add to subtotals because of rounding; grand totals of enrollment have been rounded to the nearest 50,000.

Source: Carnegie Commission on Higher Education (1973a, p. 6).

The alphabetical list of institutions in each Carnegie category was numbered consecutively. A table of random numbers determined selection, with the number of institutions per category having been determined in advance. The guiding principles were to take: (1) a 10 percent sample per Carnegie type, except that each cell had to have no fewer than 12 institutions;[3] (2) a 15 percent sample in the three large cells (comprehensive I-public, liberal arts I and II-private) to capture their possible variety; but (3) 5 percent, or 40, of the public community colleges, as that number was sufficient to capture change in that Carnegie type. Table 3 shows the *N*'s for each category. Liberal arts I-public was dropped since there were only two institutions in that category (see Table 1). In the liberal arts II-public category, only 6 of the 26 potential institutions were included in our survey. The others were not the same kind of institution in 1974 as they had been in 1967 and were thus unacceptable. Many of these schools had been two-year branches in a state system and have only recently become four-year institutions.

Table 3. Total number of institutions sampled and response rate, by Carnegie type

Type	*N sampled*[a]	*N responded*
Research I – public	12	10
Research I – private	12	12
Research II – public	12	10
Research II – private	12	11
Doctoral-granting I – public	12	12
Doctoral-granting I – private	12	11
Doctoral-granting II - public	12	10
Doctoral-granting II – private	12	10
Comprehensive I – public	33	33
Comprehensive I – private	12	12
Comprehensive II – public	12	12
Comprehensive II – private	12	12
Liberal arts I – private	21	21
Liberal arts II – public	12	6
Liberal arts II – private	28	28
Two-year – public	25	23
Two-year – private	39	38
Total	288	271

[a]Appendix B lists the institutions that were sampled.

Our final sample contained approximately 12 percent of the institutions listed in the Carnegie classification. These enrolled at least 12 percent of the nation's students.

Response Rate

Letters were sent to presidents of the selected institutions explaining the study and soliciting their participation (see Appendix A). Follow-up letters were sent approximately four weeks later. The final response rate exceeded 94 percent. The high return rate assures representativeness, and it permitted extended sampling to complete the prescribed sample goals without fear of bias from nonrespondents. There were only eight stated refusals, although some institutions reserved their commitment to participate in the transcript-analysis phase if they were so invited.

Even when we suspected that an institution failed to fulfill our criteria for inclusion in our sample, the decision to exclude it was left to the individual institution. This same procedure was employed with respect to institutions that were suspected of having changed categories between 1967 and 1974 or who may not have existed in 1967 (a possibility especially likely for the two-year colleges). In each instance, the randomly selected institution itself decided both its legitimacy and its willingness to participate.[4]

Sample Limitations

There may be some bias toward institutional age and stability. Some colleges had closed since 1967; others changed their classification; some went from private to public control; a few merged; more than one had no 1966-67 catalog; and some were established after 1967. These new and changing colleges may have more innovative curricula than older, more stable institutions. But though they may be underrepresented in our survey, these colleges consti-

[3]The doctoral-granting II-private cell had 10, the total number in that class.

[4]When an institution failed to meet the criteria for inclusion in the sample, it was eliminated from further consideration, and the next institution on the random list was invited to participate.

tute a small fraction of the 2,400-plus institutions in the United States.

There may be some discrimination against the less affluent, who may have chosen not to participate because they thought they could not free enough staff time. (One letter suggests this, but there was clearly a misunderstanding, for all that was requested were catalogs—and extant reports, if they wished to send them.) Finally, it appears that administrative inefficiency could have eliminated others from our survey. On several occasions, our letter to the president passed through many hands before someone mailed a catalog. Some of our requests will likely be forever in process through the system.[5]

Nonetheless, this sample meets the requirements of representativeness and reliability to a very high degree. Spot-checking shows geographic distribution to be in proportion to categories. Black colleges, women's and men's colleges, and Roman Catholic and other denominational colleges are all included although none was preselected. Some of the frequently studied institutions appear on our list (see Appendix B), but so do the names of many (especially comprehensive I and II and liberal arts I and II) less nationally visible, a good sign that bias did not once again select the often-studied institutions merely because they embody one or another person's conception of a "proper" education.

Data Collection and Recording

To capture both past and current practices in undergraduate curriculum requirements, a data form was developed to list tabulations from the 1966-67 and 1973-74 catalogs for each institution. These included:

- The total number of credit hours required for graduation
- The proportion of degree-credit hours represented by general education requirements, the content and structure of the general education requirements, specific general education course requirements, and distinctive patterns of general education requirements
- The proportion of degree-credit hours required in each of six selected majors[6]
- The proportion of graduation requirements available as electives

Throughout, the credit hour served as the primary unit of analysis with two exceptions: (1) certain specific requirements were tabulated on a frequency basis and (2) distinctive patterns of general education requirements were separately described on the tabulation form. The methodological procedures are discussed for each major component of the undergraduate curriculum.

Total Hours

For each institution, the minimum total number of hours required for the two-year college's A.A., or the four-year college's B.A. (or B.S.), was obtained from its catalog. While most institutions use the semester hour as the basic unit of credit, some institutions employ the quarter hour, and others, particularly liberal arts schools, state requirements in terms of courses. Because the semester hour continues to serve as the most common unit, it was adopted for purposes of comparability. If an institution used the quarter hour, the minimum quarter hour requirement for graduation was multiplied by two-thirds to obtain a total comparable to the semester hour totals. The problem of converting course requirements into semester hours was more difficult. Since many institutions state that each course is equivalent to four semester hours, we used that as the conversion factor. This decision introduces a possible source of error for those institutions that did not specify the credit-hour equivalence of courses.

General Education

Within the general education requirements of each institution, the credit hours for all courses

[5]Letters could have been mailed directly to registrars or admissions offices, or we could have gone directly to public supplies of these documents, but we wanted no institution to be surprised to see its name as a "participant." Interestingly, an institution's handling of our request became an unobtrusive measure of its organizational structure and functioning. Our correspondence could be a study in itself.

[6]Two-year colleges necessarily were analyzed only for general education and electives; the A.A. degree does not generally require a major.

fulfilling general education requirements were tabulated according to content (humanities, natural science, social science, and other) and structure. For the latter, each course was initially assigned to one of three categories reflecting the relative freedom of choice for the student: (1) prescribed courses; (2) courses that belonged to a group from which the student had to choose a certain number (that is, from a "distribution"); or (3) courses that could be chosen freely, either from all the offerings in a content division, or from all the offerings of the institution.

Prescribed courses are defined as those specific courses that every student must present for graduation. Many general education requirements, for example, include prescribed courses in Western civilization, philosophy, mathematics, and laboratory science. Courses in English composition and foreign language were tabulated separately. Although most institutions with the English composition requirement offered an advanced placement examination, English composition courses were nevertheless included within the general education requirements on the assumption that placement out of English composition is the exception rather than the rule. Moreover, students exempted from one level of English composition are often placed at a higher level of prescribed English composition.

Foreign languages, however, provided a more serious problem. Because entering students are frequently prepared to be exempted from all or part of general education language requirements, the tabulation of required credit hours in foreign language remained an arbitrary process. A rule-of-thumb was adopted whereby one-half of the total number of credit hours required for the completion of the foreign language requirement was included in the prescribed-course category. This often meant one year's worth of credits: if two years, or 16 credit hours, were required at a particular institution, 8 credit hours were assigned in the tabulation process.

The remaining general education courses were classified as either distribution or free. *Distribution courses* are defined as those within a content division, department, or group, where some degree of constraint is exercised over student selection. Examples of an institution's general education distribution requirements may be two of five courses in the humanities; any two courses in philosophy; five courses in at least two departments; 12 hours in science and mathematics with at least 8 in the same laboratory science; a course in American history before the twentieth century; two of five courses in literature, philosophy, and fine arts; or combinations of those.

Free courses are defined as those that are taken to fulfill the general education credit-hour requirement, but that otherwise place no restriction on a student's selection. Courses are considered free when the student must take a certain number of courses from across all three divisions as well as when this restriction does not exist (so that a student might fulfill a 40-hour general education requirement by taking all 40 hours in a single department). Unlike the distribution courses, where students have some choice among specified alternatives but not unlimited selection, free courses permit the student to choose any course either within or across content divisions.[7]

Assigning a course to a content division was usually a straightforward procedure. A sociology course, for example, was tabulated in the social sciences, a biology course in the natural sciences, and an art history course in the humanities. A fourth category, titled *other*, was created for two reasons. First, some interdisciplinary courses by their nature did not fit any one of the three major content divisions. Second, as indicated above, some institutions required or allowed students to select a number of courses from more than one content division. One frequent requirement called for the student to take a certain number of courses in the divisions not containing her or his major; another example was a requirement that a student take a certain number of hours in mathematics, foreign language, or philosophy. Rather than arbitrarily dividing these hours among the three divisions, we assigned them to the "other" category. Partially because of the interdisciplinary courses, but primarily because of the fre-

[7]We make a clear distinction between *free* and *elective* courses. Elective courses are those chosen by a student to fulfill no general education or major requirement. Free courses must always be understood to be within the limitations of general education requirements. To require a free choice of courses sounds like a contradiction in terms, but this is precisely what colleges and universities have done.

quent requirements of the latter type, the "other" category included at least one course in over one-half of the institutions sampled. This category also allows for the classification of miscellaneous courses, such as health or college orientation, that do not obviously belong to any content division.

Finally, the total minimum number of general education credit hours required for the B.A. was derived by adding the general education hours thus tabulated according to structural category (prescribed, distribution, and free) and content division (humanities, natural science, social science, and other). Although in many cases the minimum figure of required general education hours stated in the catalog equaled the computed total, differences did occasionally result. Two factors explain the discrepancies. First, some schools included the two-year foreign language requirement in the general education total, while others did not. (It was noted earlier that, for the purposes of this study, one-half of the foreign language hours required served as a better indicator of the average number of hours taken in this area.) Second, there not infrequently was a disparity in the catalog itself between the minimum number of general education hours required, and the sum of the prescribed general education courses and their respective credit hours. Because credit hours better represent the proportion of academic work actually allotted to general education, we decided that the aggregate figure was the more valid measure.

In addition to showing whether a particular institution had prescribed courses in English composition and foreign language, the data form also included information regarding physical education and mathematics requirements. Actual prescribed hours of physical education were included in the general education total only if they were also included in the total number of credits required for the degree.

The Major

Two majors were selected from each of the three main academic areas for our analysis: English and philosophy were chosen from the humanities, biology and physics from the natural sciences, and political science and psychology from the social sciences. The total minimum credit-hour requirement was tabulated for each of the six majors. This figure includes minor or related work required to complete a major but does not include recommended courses, either within or outside the major department. For example, an English department might require 24 credits of English, 16 hours of related work in the humanities, and recommend 12 credit hours in the social sciences. In this example, the number of credit hours required for a major in English would be 40 semester hours. The major total does not include hours satisfying general education requirements; had it done so, the elective credits available to the student would have appeared to be fewer than they were.

The rationale for choosing these six majors to illustrate the proportion of total credit work required in the major component emerged gradually. Limited time and resources prevented our examining all possible majors, but previous research suggested that student course-taking patterns have different characteristics according to content (that is, humanities majors are different from natural science majors, and so on). While the six majors chosen are not necessarily microcosms of their particular divisions, they are offered in most colleges and universities and are offered consistently in the same division. (History, for example, which sometimes appears in the humanities and other times in the social sciences, and sociology, sometimes linked with anthropology and other times not, had to be eliminated.)

Another reason for examining individual majors was that although most catalogs listed a minimum number of hours required to meet the major requirement, this figure was often misleadingly low. For example, one catalog stated that students were required to take 30 hours in a major; yet an examination revealed that no single major in the entire catalog had a credit-hour requirement of less than 36 hours. In addition, some institutions did not even list a general minimum credit-hour requirement for a major, so that it was necessary to look at the individual majors. The six selected provide a rough estimate of work required within each division that can then be compared with work in other divisions.

Electives

Electives constitute the portion of the undergraduate degree work remaining after the

general education and major components are completed. (Since two-year colleges did not always have requirements for the major, electives in these schools were defined as what remained after general education requirements were tabulated.) Rather than computing the average number of hours required in each of the six selected majors for all institutions, we decided to select from each institution only the majors with the lowest and highest number of required hours. These minimum and maximum figures were then averaged across all 210 four-year institutions in the sample and by institutional type.

Thus, the average maximum and minimum amounts of elective time available to the student in both 1967 and 1974 (depending on the major chosen) could be determined. By adding the overall percentage of time required in general education work to the minimum percentage of time required in the major and subtracting from 100 percent, the maximum percentage of elective time was computed. Similarly, general education time plus maximum major time resulted in a residual that equaled the minimum elective time available to the student.

Overall Degree Requirements

Semester Hours. For the 210 four-year institutions included in the study, the average number of semester hours required for a bachelor's degree in arts and sciences decreased from 125 to 123 between 1967 and 1974. For the 61 two-year institutions, the average number of semester hours required for the associate's degree decreased from 63 to 62. Table 4 displays these changes for each of the 17 Carnegie types; 13 types decreased semester hour requirements, one increased them, and three kept them the same. The largest decrease, a drop from 124 to 120 hours, occurred in research universities II-private. The only increase was in the liberal arts colleges II-private, which increased their required hours from 125 to 126.

Three Components of Degree Requirements. In most four-year undergraduate institutions, the typical course of study has consisted of three broad areas. *General education requirements* represent the means of achieving breadth in the curriculum; *major requirements* are viewed as the medium through which students add depth to

Table 4. Average number of semester hours required, by institutional type

	N	*1966-67*	*1973-74*	*Change*
Research I – public	10	125	123	–2
Research I – private	12	124	123	–1
Research II – public	10	128	126	–3
Research II – private	11	124	120	–4
Doctoral-granting I – public	12	126	124	–2
Doctoral-granting I – private	11	125	123	–1
Doctoral-granting II – public	10	125	124	–1
Doctoral-granting II – private	10	125	122	–3
Comprehensive I – public	33	126	125	–1
Comprehensive I – private	12	125	122	–3
Comprehensive II – public	12	124	124	0
Comprehensive II – private	12	126	126	0
Liberal arts I – private	21	121	119	–2
Liberal arts II – public	6	124	122	–2
Liberal arts II – private	28	125	126	+1
Total (four-year)	210	125	123	–2
Two-year – public	38	62	62	0
Two-year – private	23	64	63	–1
Total (two- and four-year)	271			

their educational experience. The remainder of the student's curriculum—over which the student has complete control—has traditionally been referred to as the *elective portion* of undergraduate study.[8]

One overall finding of this survey is that the relative weight of each of these three areas—general education, the major, and electives—has changed since 1967. The general education component has diminished considerably, while the major portion has remained relatively stable; the net effect has been an increase in the elective segment of the student's total educational experience. As displayed in Table 5, the maximum percentage of elective work at four-year colleges has increased from 30.2 percent in 1967 to 41.3 percent in 1974, and the minimum percentage has climbed from 16.8 to 25.5 percent. At two-year colleges, the average amount of elective work available to the student has increased from 41.3 to 46.2 percent.

This trend toward fewer general education requirements and increased student freedom through electives is evidenced across all 17 Carnegie institutional types (see Table 6).

[8]Again, for most two-year colleges there are but two components—general education and electives. The data on two-year colleges are reported, but separate discussions are not included until the summary.

Table 5. Proportions of undergraduate education spent in general education, the major, and electives (in percentages)

	1967	*1974*
Four-year institutions		
General education requirements (mean)	43.1	33.5
Major requirements (range)	26.7-40.1	25.2-41.0
Available electives (range)	16.8-30.2	25.5-41.3
Two-year institutions		
General education requirements (mean)	58.7	53.8
Available electives	41.3	46.2

Table 6. Proportions of undergraduate education spent in general education, the major, and electives, by institutional type (in percentages)

	General education (mean)		*Major requirements (range)*		*Available electives (range)*	
	1967	*1974*	*1967*	*1974*	*1967*	*1974*
Research I – public	42	41	25-40	24-38	18-33	21-35
Research I – private	42	33	21-38	22-43	20-37	24-45
Research II – public	41	35	28-40	23-42	19-31	23-42
Research II – private	44	33	26-42	25-44	14-30	23-42
Doctoral-granting I – public	40	36	30-40	25-47	20-30	17-39
Doctoral-granting I – private	45	37	23-44	23-45	11-32	18-40
Doctoral-granting II – public	40	30	32-40	32-41	20-28	29-38
Doctoral-granting II – private	44	37	22-44	24-44	12-34	19-39
Comprehensive I – public	43	36	29-44	29-44	13-28	20-35
Comprehensive I – private	49	35	25-42	23-44	9-26	21-42
Comprehensive II – public	43	38	34-44	31-44	13-23	18-31
Comprehensive II – private	38	35	25-37	21-40	25-37	25-44
Liberal arts I – private	43	23	23-33	21-34	24-34	43-56
Liberal arts II – public	46	27	34-37	30-38	19-22	30-38
Liberal arts II – private	45	31	26-36	25-35	29-29	44-44
Two-year – public	53	53			47	47
Two-year – private	68	55			32	45

The four institutional types with the greatest decrease in general education requirements (as a proportion of total hours) and, concomitantly, the greatest increase in available elective hours were comprehensive I-private (14 and 16 percentage points, respectively), liberal arts I-private (20 and 22 percentage points), liberal arts II-public (19 and 16 percentage points—only six institutions, however), and liberal arts II-private (14 and 15 percentage points). The types that changed least on these dimensions were research universities I-public (1 and 2 percentage points) and two-year-public (no change).

General Education Requirements

As shown in Table 5, general education requirements have diminished since 1967 from 43.1 percent of the average undergraduate experience to 33.5 percent at four-year colleges, and from 58.7 percent to 53.8 percent at two-year colleges.[9] Fully 72 percent of the four-year institutions surveyed evidenced this trend; the average decline was approximately 14 percentage points, with a range from 1 to 54. Similarly, 60 percent of the two-year colleges demonstrated this trend, with the average decline about 8 percentage points and ranging from 1 to 57. Table 7 demonstrates these trends for each of the Carnegie institutional types.

Table 8 displays the range of percentages in total undergraduate time allotted to general education requirements for all 210 four-year colleges and universities. The figures in parentheses are for the 61 two-year colleges.

The Structure of General Education. In addition to the overall decline in the proportion of general education requirements between 1967 and 1974, the structure of general education requirements also changed. In 1967, the average general education requirements in four-year institutions consisted 50 percent of prescribed courses, 46 percent of distribution courses, and 4 percent of free courses. At the two-year colleges, the breakdown was 49, 43, and 8 percent. By 1974, the proportion of prescribed general education courses at four-year colleges had dropped to 28 percent. This trend was accompanied by a slight increase in distri-

[9]The higher percentages in the two-year colleges represent fewer actual semester hours because the total hours are about half. See below.

Table 7. Trends in the proportion of undergraduate education in general education requirements, 1967-1974, by institutional type

	Number of institutions	*Number of institutions with decrease*	*Percentage of institutions with decrease*	*Range of percentage point decreases*	*Average percentage point decrease*	*Number of institutions with increase*	*Percentage of institutions with increase*	*Range of percentage point increases*	*Average percentage point increase*	*Number of institutions with same proportion*	*Percentage of institutions with same proportion*
Research I – public	10	5	(50)	(2-9)	5	4	(40)	(1-5)	3	1	(10)
Research I – private	12	10	(84)	(2-26)	12	1	(8)	(8-8)	8	1	(8)
Research II – public	10	6	(60)	(3-25)	12	3	(30)	(3-4)	3	1	(10)
Research II – private	11	7	(64)	(4-51)	23	3	(27)	(10-19)	14	1	(9)
Doctoral-granting I – public	12	9	(75)	(1-14)	6	2	(17)	(2-10)	6	1	(8)
Doctoral-granting I – private	11	8	(73)	(4-34)	14	3	(27)	(1-8)	6	0	(0)
Doctoral-granting II – public	10	9	(90)	(1-23)	12	1	(10)	(5-5)	5	0	(0)
Doctoral-granting II – private	10	6	(60)	(2-38)	15	3	(30)	(2-8)	5	1	(10)
Comprehensive I – public	33	24	(73)	(1-21)	10	4	(12)	(2-14)	7	5	(15)
Comprehensive I – private	12	9	(75)	(3-43)	21	3	(25)	(5-9)	7	0	(0)
Comprehensive II – public	12	6	(50)	(4-20)	10	2	(17)	(4-4)	4	4	(33)
Comprehensive II – private	12	5	(42)	(5-19)	13	5	(42)	(1-10)	4	2	(17)
Liberal arts I – private	21	20	(95)	(3-48)	21	0	(0)	(0)	0	1	(5)
Liberal arts II – public	6	4	(67)	(14-54)	24	2	(33)	(4-4)	4	0	(0)
Liberal arts II – private	28	23	(82)	(1-48)	17	2	(7)	(1-2)	2	3	(11)
Two-year – public	38	18	(47)	(1-50)	10	14	(37)	(2-61)	14	6	(16)
Two-year – private	23	19	(83)	(1-57)	17	3	(13)	(9-12)	10	1	(4)

Table 8. Frequency distribution of the proportion of undergraduate education in general education requirements, all institutions

1966-67			1973-74		
Percent of undergraduate education in general education	*N*	*Percent*	*Percent of undergraduate education in general education*	*N*	*Percent*
0-5	1 (0)	0 (0)	0-5	13 (2)	6 (3)
6-10	0 (0)	0 (0)	6-10	2 (0)	1 (0)
11-15	0 (1)	0 (2)	11-15	3 (2)	1 (3)
16-20	0 (0)	0 (0)	16-20	9 (0)	4 (0)
21-25	4 (0)	2 (0)	21-25	14 (1)	7 (2)
26-30	4 (3)	2 (5)	26-30	31 (1)	15 (2)
31-35	19 (3)	9 (5)	31-35	32 (2)	15 (3)
36-40	44 (5)	21 (8)	36-40[a]	49 (7)	23 (11)
41-45[a]	61 (4)	29 (7)	41-45	19 (3)	9 (5)
46-50	42 (3)	20 (5)	46-50	24 (7)	11 (11)
51-55	19 (7)	9 (11)	51-55[b]	9 (7)	4 (11)
56-60[b]	9 (6)	4 (10)	56-60	3 (9)	1 (15)
61-65	4 (6)	2 (10)	61-65	2 (1)	1 (2)
66-70	1 (9)	0 (15)	66-70	0 (6)	0 (10)
71-75	1 (6)	0 (10)	71-75	0 (8)	0 (13)
76-80	1 (2)	0 (3)	76-80	0 (3)	0 (5)
81-85	0 (3)	0 (5)	81-85	0 (0)	0 (0)
86-90	0 (1)	0 (2)	86-90	0 (1)	0 (2)
91-95	0 (1)	0 (2)	91-95	0 (0)	0 (0)
96-100	0 (1)	0 (2)	96-100	0 (1)	0 (2)
Total	210 (61)	98 (99)	Total	210 (61)	98 (100)

Note: Numbers and percentages for two-year institutions are in parentheses.

[a]Median for four-year institutions.

[b]Median for two-year institutions.

bution courses to 54 percent, but especially by an increase in free courses to 18 percent.[18] The 1974 proportions for two-year colleges were 34, 49, and 17 percent.

Tables 9, 10, and 11 display these structural changes in general education requirements for the 17 Carnegie institutional types. The proportion of prescribed courses dropped in 82 percent of the four-year institutions and 75 percent of the two-year colleges (the proportion of prescribed general education courses at the remaining institutions either stayed the same or increased slightly). Many of these institutions, and the handful of other schools that witnessed a decline in free courses, included a greater proportion of general education in distribution courses, although the small overall increase in that category (6 percentage points for four-year and 4 percentage points for two-year institutions) disguises two different shifts. Institutions with a large proportion of prescribed courses in 1967 tended to have increased their proportion of distribution courses by 1974, but institutions that began with a large proportion of distribution courses tended to increase the proportion of free courses. While only 34 per-

[18]The "free" percentages are a bit misleading. In both 1967 and 1974 the mode was zero percent, but the percentage of those institutions with no free courses dropped from 75 percent to less than 60 percent. Still, the mean is not a representative statistic for this category.

Table 9. Trends in the proportion of general education requirements in prescribed courses, 1967-1974, by institutional type

	Number of institutions	Number of institutions with decrease	Percentage of institutions with decrease	Range of percentage point decreases	Average percentage point decrease	Number of institutions with increase	Percentage of institutions with increase	Range of percentage point increases	Average percentage point increase	Number of institutions with same proportion	Percentage of institutions with same proportion
Research I – public	10	6	(60)	(5-87)	31	2	(20)	(2-3)	3	2	(20)
Research I – private	12	10	(83)	(5-48)	20	2	(17)	(5-10)	8	0	(0)
Research II – public	10	9	(90)	(1-56)	19	0	(0)	(0)	0	1	(10)
Research II – private	11	8	(73)	(4-41)	1[illegible]	2	(18)	(19-82)	32	1	(9)
Doctoral-granting I – public	12	12	(100)	(10-42)	1[illegible]	0	(0)	(0)	0	0	(0)
Doctoral-granting I – private	11	9	(82)	(16-47)	32	2	(18)	(2-5)	4	0	(0)
Doctoral-granting II – public	10	9	(90)	(5-53)	21	1	(10)	(2-2)	2	0	(0)
Doctoral-granting II – private	10	9	(90)	(4-57)	34	0	(0)	(0)	0	1	(10)
Comprehensive I – public	33	27	(82)	(2-100)	33	2	(6)	(2-3)	3	4	(12)
Comprehensive I – private	12	8	(67)	(14-57)	35	3	(25)	(3-22)	14	1	(8)
Comprehensive II – public	12	10	(83)	(6-86)	31	2	(17)	(7-11)	9	0	(0)
Comprehensive II – private	12	7	(58)	(9-88)	46	4	(33)	(3-56)	31	1	(8)
Liberal arts I – private	21	17	(81)	(9-62)	38	3	(14)	(2-54)	19	1	(5)
Liberal arts II – public	6	5	(83)	(4-63)	34	1	(17)	(7-7)	7	0	(0)
Liberal arts II – private	28	26	(93)	(1-92)	38	1	(4)	(7-7)	7	1	(4)
Total	210	172	(82)	(1-100)	30	25	(12)	(2-82)	14	13	(6)
Two-year – public	38	29	(76)	(1-83)	28	4	(11)	(3-27)	12	5	(13)
Two-year – private	23	16	(74)	(6-58)	22	6	(22)	(3-76)	32	1	(4)
Total	61	45	(75)	(1-83)	26	10	(16)	(3-76)	24	6	(9)

Table 10. Trends in the proportion of general education requirements in distribution courses, 1967-1974, by institutional type

	Number of institutions	Number of institutions with decrease	Percentage of institutions with decrease	Range of percentage point decreases	Average percentage point decrease	Number of institutions with increase	Percentage of institutions with increase	Range of percentage point increases	Average percentage point increase	Number of institutions with same proportion	Percentage of institutions with same proportion
Research I – public	10	3	(30)	(2-66)	24	5	(50)	(5-87)	33	2	(20)
Research I – private	12	4	(33)	(5-71)	37	8	(67)	(5-48)	11	0	(0)
Research II – public	10	2	(20)	(22-73)	48	6	(60)	(2-57)	25	2	(20)
Research II – private	11	5	(45)	(44-82)	66	4	(36)	(4-20)	10	2	(18)
Doctoral-granting I – public	12	0	(0)	(0)	0	12	(100)	(10-43)	21	0	(0)
Doctoral-granting I – private	11	2	(18)	(10-22)	16	8	(73)	(3-47)	27	1	(9)
Doctoral-granting II – public	10	2	(20)	(2-38)	18	8	(80)	(5-49)	20	0	(0)
Doctoral-granting II – private	10	4	(40)	(13-69)	43	5	(50)	(4-53)	31	1	(10)
Comprehensive I – public	33	9	(27)	(2-55)	23	20	(61)	(10-100)	32	4	(12)
Comprehensive I – private	12	4	(33)	(18-72)	38	6	(50)	(22-50)	39	2	(17)
Comprehensive II – public	12	4	(33)	(5-35)	15	7	(58)	(3-60)	21	1	(8)
Comprehensive II – private	12	3	(25)	(25-56)	42	8	(67)	(7-65)	42	1	(8)
Liberal arts I – private	21	10	(48)	(3-73)	29	9	(43)	(9-62)	32	2	(10)
Liberal arts II – public	6	2	(33)	(7-37)	22	4	(67)	(4-73)	36	0	(0)
Liberal arts II – private	28	9	(32)	(3-78)	39	18	(64)	(1-92)	33	1	(4)
Total	210	63	(30)	(2-82)	34	128	(61)	(1-100)	28	19	(9)
Two-year – public	38	12	(32)	(5-67)	25	22	(58)	(1-73)	20	4	(10)
Two-year – private	23	8	(35)	(5-76)	28	14	(61)	(9-58)	24	1	(4)
Total	61	20	(33)	(5-76)	26	36	(59)	(1-73)	22	5	(8)

Table 11. Trends in the proportion of general education requirements in free courses, 1967-1974, by institutional type

	Number of institutions	*Number of institutions with decrease*	*Percentage of institutions with decrease*	*Range of percentage point decreases*	*Average percentage point decrease*	*Number of institutions with increase*	*Percentage of institutions with increase*	*Range of percentage point increases*	*Average percentage point increase*	*Number of institutions with same proportion*	*Percentage of institutions with same proportion*
Research I – public	10	0	(0)	(0)	0	2	(20)	(5-80)	38	8	(80)
Research I – private	12	1	(8)	(28-28)	28	3	(24)	(42-100)	74	8	(68)
Research II – public	10	0	(0)	(0)	0	1	(10)	(40-40)	40	9	(90)
Research II – private	11	0	(0)	(0)	0	5	(45)	(49-94)	70	6	(55)
Doctoral-granting I – public	12	1	(8)	(12-12)	12	0	(0)	(0)	0	11	(92)
Doctoral-granting I – private	11	1	(9)	(4-4)	4	4	(36)	(19-67)	34	6	(55)
Doctoral-granting II – public	10	1	(10)	(6-6)	6	2	(20)	(6-77)	36	7	(70)
Doctoral-granting II – private	10	0	(0)	(0)	0	4	(40)	(50-100)	80	6	(60)
Comprehensive I – public	33	2	(6)	(15-17)	16	12	(36)	(9-100)	41	19	(58)
Comprehensive I – private	12	2	(17)	(3-8)	6	3	(25)	(24-90)	49	7	(58)
Comprehensive II – public	12	1	(8)	(15-15)	15	8	(67)	(6-56)	22	3	(25)
Comprehensive II – private	12	2	(17)	(16-23)	20	4	(33)	(5-9)	7	6	(50)
Liberal arts I – private	21	5	(24)	(7-25)	13	11	(52)	(20-100)	66	5	(24)
Liberal arts II – public	6	1	(17)	(61-61)	61	1	(17)	(27-27)	27	4	(66)
Liberal arts II – private	28	2	(7)	(2-12)	7	11	(39)	(3-100)	66	15	(54)
Total	210	19	(9)	(2-61)	15	71	(34)	(3-100)	50	120	(57)
Two-year – public	58	5	(13)	(3-100)	31	14	(37)	(1-100)	47	19	(50)
Two-year – private	23	3	(13)	(6-43)	22	3	(13)	(12-75)	36	17	(74)
Total	61	8	(13)	(3-100)	28	17	(28)	(1-100)	45	36	(59)

cent of the four-year institutions and 28 percent of the two-year included more free courses in their general education requirements in 1974 than they did in 1967, the institutions that increased the proportion of free courses clearly changed more than those that shifted from prescribed to distribution courses.

Tables 12, 13, and 14 display the frequency distributions of proportions of prescribed, distribution, and free courses, respectively, for all 210 four-year institutions in both 1967 and 1974. The percentages for the two-year institutions are displayed in parentheses.

Content of General Education. The content of general education requirements also changed between 1967 and 1974, although not as dramatically as their structure did. As indicated earlier, four categories were delineated: humanities, natural sciences, social sciences, and "other." At four-year institutions, the relative proportions of the first three categories declined: humanities dropped from 48.2 to 41.5 percent of required general education hours, natural sciences from 21.0 to 18.3 percent, and social sciences from 20.1 to 17.1 percent. (The figures for the two-year colleges were 43.7 to 43.4 percent, 19.9 to 21.6 percent, and 22.9 to 21.9 percent.) One cannot infer, however, that actual proportions of the time spent in any of the content areas declined, since the correspondingly greater percentage in the "other" category includes courses from one or more of the three specific content areas.[11]

Four specific requirements within general education were also reviewed. Three of these are subjects that most faculty have considered essential to a liberal education—English composition, foreign languages, and mathematics. Physical education was the fourth requirement. Fewer institutions required these subjects in 1974 than did in 1967: 90 percent in 1967 and 72 percent in 1974 required English composition; 72 and 53 percent required a foreign language; 33 and 20 percent required mathemat-

[11]Only a measure of actual student behavior will allow assigning hours from the "other" category to the humanities, natural sciences, and social sciences divisions.

Table 12. Frequency distribution of the proportion of general education in prescribed courses, all institutions

1966-67			1973-74		
Percent of general education in prescribed courses	*N*	*Percent*	*Percent of general education in prescribed courses*	*N*	*Percent*
0-5	0 (2)	0 (3)	0-5	29 (1)	15 (2)
6-10	1 (0)	0 (0)	6-10	17 (2)	9 (3)
11-15	5 (1)	2 (2)	11-15	17 (4)	9 (7)
16-20	11 (2)	5 (3)	16-20	27 (8)	14 (14)
21-25	13 (3)	6 (5)	21-25[a]	24 (12)	12 (20)
26-30	20 (6)	10 (10)	26-30[b]	16 (7)	8 (12)
31-35	16 (5)	8 (8)	31-35	13 (3)	7 (5)
36-40	19 (5)	9 (8)	36-40	12 (7)	6 (12)
41-45	11 (6)	5 (10)	41-45	9 (2)	5 (3)
46-50[a,b]	17 (5)	8 (8)	46-50	11 (2)	6 (3)
51-55	20 (5)	10 (8)	51-55	2 (1)	1 (2)
56-60	13 (3)	6 (5)	56-60	5 (1)	3 (2)
61-65	13 (3)	6 (5)	61-65	2 (0)	1 (0)
66-70	13 (3)	6 (5)	66-70	2 (2)	1 (3)
71-75	2 (3)	1 (5)	71-75	2 (3)	1 (5)
76-80	4 (3)	2 (5)	76-80	3 (1)	2 (2)
81-85	9 (2)	4 (3)	81-85	3 (0)	2 (0)
86-90	10 (0)	5 (0)	86-90	3 (1)	2 (2)
91-95	3 (0)	1 (0)	91-95	0 (0)	0 (0)
96-100	9 (4)	4 (7)	96-100	3 (2)	2 (2)
Total	209 (61)			200 (59)	

Note: Institutions requiring no general education are omitted. Numbers and percentages for two-year colleges are in parentheses.

[a]Median for four-year institutions.

[b]Median for two-year institutions.

Table 13. Frequency distribution of the proportion of general education in distribution courses, all institutions

1966-67			1973-74		
Percent of general education in distribution courses	*N*	*Percent*	*Percent of general education in distribution courses*	*N*	*Percent*
0-5	12 (5)	6 (8)	0-5	28 (4)	14 (7)
6-10	8 (2)	4 (3)	6-10	1 (3)	1 (5)
11-15	10 (4)	5 (7)	11-15	3 (3)	2 (5)
16-20	10 (5)	5 (8)	16-20	8 (3)	4 (5)
21-25	4 (3)	2 (5)	21-25	5 (4)	3 (7)
26-30	6 (3)	3 (5)	26-30	2 (1)	1 (2)
31-35	17 (4)	8 (7)	31-35	7 (4)	4 (7)
36-40	18 (3)	9 (5)	36-40	5 (2)	3 (3)
41-45[b]	10 (3)	5 (5)	41-45	5 (0)	3 (0)
46-50[a]	20 (4)	10 (7)	46-50	6 (3)	3 (5)
51-55	15 (4)	7 (7)	51-55	11 (2)	6 (3)
56-60	12 (2)	6 (3)	56-60[b]	14 (2)	7 (3)
61-65	18 (4)	9 (7)	61-65[a]	14 (3)	7 (5)
66-70	16 (5)	8 (8)	66-70	13 (2)	7 (3)
71-75	15 (6)	7 (10)	71-75	20 (8)	10 (14)
76-80	10 (1)	5 (2)	76-80	10 (8)	5 (14)
81-85	5 (2)	2 (3)	81-85	12 (3)	6 (5)
86-90	3 (0)	1 (0)	86-90	14 (2)	7 (3)
91-95	0 (0)	0 (0)	91-95	9 (1)	5 (2)
96-100	0 (1)	0 (2)	96-100	13 (1)	7 (2)
Total	209 (61)			200 (59)	

Note: Institutions requiring no general education are omitted. Numbers and percentages for two-year colleges are in parentheses.

[a]Median for four-year institutions.

[b]Median for two-year institutions.

Table 14. Frequency distribution of the proportion of general education in free courses, all institutions

1966-67			1973-74		
Percent of general education in free courses	*N*	*Percent*	*Percent of general education in free courses*	*N*	*Percent*
0-5[a,b]	170 (48)	81 (79)	0-5[a,b]	128 (37)	64 (63)
6-10	7 (0)	3 (0)	6-10	6 (0)	3 (0)
11-15	9 (1)	4 (2)	11-15	3 (2)	2 (3)
16-20	6 (1)	3 (2)	16-20	10 (3)	5 (5)
21-25	5 (1)	2 (2)	21-25	4 (0)	2 (0)
26-30	3 (1)	1 (2)	26-30	6 (2)	3 (3)
31-35	1 (3)	0 (5)	31-35	4 (2)	2 (3)
36-40	3 (1)	1 (2)	36-40	4 (1)	2 (2)
41-45	0 (2)	0 (3)	41-45	4 (0)	2 (0)
46-50	0 (0)	0 (0)	46-50	2 (2)	1 (3)
51-55	1 (0)	0 (0)	51-55	0 (1)	0 (2)
56-60	0 (0)	0 (0)	56-60	2 (0)	1 (0)
61-65	1 (1)	0 (2)	61-65	1 (2)	1 (3)
66-70	0 (1)	0 (2)	66-70	3 (2)	2 (3)
71-75	1 (0)	0 (0)	71-75	4 (1)	2 (2)
76-80	0 (0)	0 (0)	76-80	5 (1)	3 (2)
81-85	1 (0)	0 (0)	81-85	1 (2)	1 (3)
86-90	0 (0)	0 (0)	86-90	3 (0)	2 (0)
91-95	0 (0)	0 (0)	91-95	0 (0)	0 (0)
96-100	1 (1)	0 (2)	96-100	10 (1)	5 (2)
Total	209 (61)			200 (59)	

Note: Institutions requiring no general education are omitted. Numbers and percentages for two-year colleges are in parentheses.

[a]Median for four-year institutions.

[b]Median for two-year institutions.

ics; and 86 and 55 percent required physical education (see Tables 15 through 18).

Major Requirements

As indicated earlier, the average proportion of the undergraduate curriculum spent in requirements for the major changed minimally between 1967 and 1974. The minimum and maximum percentages in 1967 were 27 and 40 percent, respectively, depending upon the major chosen. For 1974, those figures were 25 and 41 percent. The percentages for the six individual majors, from which these aggregate figures were gathered, were: English (30 percent in 1967 and 29 percent in 1974); philosophy (27 and 27 percent); biology (37 and 38 percent); physics (34 and 37 percent); political science (26 and 29 percent); and psychology (29 and 28 percent). During the designated seven-year period, therefore, one can say that the number of credit hours required for the major in the undergraduate institutions studied did not change.

Summary

Undergraduate degree requirements have changed considerably—if unevenly—since 1967. At the most general level, the percentage of degree-credit hours allocated to general education has decreased. It is now substantially less for the B.A. and somewhat reduced for the A.A. Since the time required in the major constituted approximately the same fraction of a B.A. in 1974 as it did in 1967, the time available for electives increased.

Because the general education component evidenced so much change across the years, becoming less restrictive and taking up less of the student's total degree time, much of our data collection and subsequent analysis at the institutional (that is, catalog) level centered on this dimension of the undergraduate curriculum. The implications resulting from the increase in the number of available student electives required a different kind of analysis, to which we now turn.

Table 15. Trends in the number of institutions requiring English composition, by institutional type

	1966-67			1973-74		
	Total N	*Number requiring English composition*	*Percent*	*Total N*	*Number requiring English composition*	*Percent*
Research I – public	10	9	90	10	6	60
Research I – private	12	9	75	12	6	50
Research II – public	10	10	100	10	9	90
Research II – private	11	10	91	11	7	64
Doctoral-granting I – public	12	12	100	12	10	83
Doctoral-granting I – private	11	11	100	11	9	82
Doctoral-granting II – public	10	10	100	10	7	70
Doctoral-granting II – private	10	10	100	10	7	70
Comprehensive I – public	33	28	85	33	23	70
Comprehensive I – private	12	9	75	12	6	50
Comprehensive II – public	12	11	92	12	11	92
Comprehensive II – private	12	12	100	12	8	67
Liberal arts I – private	21	11	90	21	10	48
Liberal arts II – public	6	6	100	6	4	67
Liberal arts II – private	28	28	100	28	16	57
Two-year – public	38	36	95	38	33	87
Two-year – private	23	23	100	23	22	96
Total	271	245	90	271	194	72

Table 16. Trends in the number of institutions requiring two years of college-level foreign language, by institutional type

	1966-67			1973-74		
	Total N	*Number requiring foreign language*	*Percent*	*Total N*	*Number requiring foreign language*	*Percent*
Research I – public	10	10	100	10	9	90
Research I – private	12	11	92	12	6	50
Research II – public	10	10	100	10	7	70
Research II – private	11	9	82	11	6	55
Doctoral-granting I – public	12	10	83	12	11	92
Doctoral-granting I – private	11	8	73	11	6	55
Doctoral-granting II – public	10	10	100	10	7	70
Doctoral-granting II – private	10	9	90	10	7	70
Comprehensive I – public	33	27	82	33	16	48
Comprehensive I – private	12	11	92	12	5	42
Comprehensive II – public	12	9	75	12	5	42
Comprehensive II – private	12	9	75	12	6	50
Liberal arts I – private	21	18	86	21	10	48
Liberal arts II – public	6	4	67	6	2	33
Liberal arts II – private	28	24	86	28	11	39
Two-year – public	38	6	16	38	3	8
Two-year – private	23	11	48	23	5	22
Total	271	196	72	271	122	53

Table 17. Trends in the number of institutions requiring at least one college-level course in mathematics, by institutional type

	1966-67			1973-74		
	Total N	*Number requiring mathematics*	*Percent*	*Total N*	*Number requiring mathematics*	*Percent*
Research I – public	10	4	40	10	2	20
Research I – private	12	3	25	12	2	17
Research II – public	10	2	20	10	0	0
Research II – private	11	4	36	11	1	9
Doctoral-granting I – public	12	4	33	12	2	17
Doctoral-granting I – private	11	3	27	11	0	0
Doctoral-granting II – public	10	6	60	10	4	40
Doctoral-granting II – private	10	2	20	10	2	20
Comprehensive I – public	33	27	81	33	16	48
Comprehensive I – private	12	3	25	12	1	8
Comprehensive II – public	12	6	50	2	7	58
Comprehensive II – private	12	4	33	12	4	33
Liberal arts I – private	21	3	14	21	0	0
Liberal arts II – public	6	5	83	6	2	33
Liberal arts II – private	28	1	5	28	1	3
Two-year – public	38	11	29	38	7	18
Two-year – private	23	2	9	23	3	13
Total	271	90	33	271	54	20

Table 18. Trends in the number of institutions requiring at least one college-level course in physical education, by institutional type

	1966-67			1973-74		
	Total N	*Number requiring physical education*	*Percent*	*Total N*	*Number requiring physical education*	*Percent*
Research I – public	10	8	80	10	6	60
Research I – private	12	11	92	12	5	42
Research II – public	10	8	80	10	5	50
Research II – private	11	9	82	11	5	45
Doctoral-granting I – public	12	10	83	12	6	50
Doctoral-granting I – private	11	9	82	11	5	45
Doctoral-granting II – public	10	9	90	10	6	60
Doctoral-granting II – private	10	10	100	10	3	30
Comprehensive I – public	33	29	88	33	21	64
Comprehensive I – private	12	8	67	12	3	25
Comprehensive II – public	12	12	100	12	10	83
Comprehensive II – private	12	11	92	12	10	83
Liberal arts I – private	21	17	81	21	12	57
Liberal arts II – public	6	6	100	6	4	67
Liberal arts II – private	28	6	21	28	4	13
Two-year – public	38	31	82	38	29	76
Two-year – private	23	17	74	23	16	70
Total	271	211	86	271	148	55

3

Student Course-Taking Behavior

As stated at the end of Chapter 1, we attempted to answer two major research questions with transcript analyses: (1) To what extent does student course-taking agree with the requirements stated in the official announcements of institutions? and (2) Has there been a change in the extent of specialization since 1967? That is, are students using their electives to broaden their education, or to take additional work in their area of specialization?

Sample Selection

Transcripts were collected for graduates of 1967 and 1974 from ten colleges and universities. Eight of the institutions had changed their curriculum in some significant way between 1967 and 1974. Two institutions not experiencing appreciable curricular change were chosen as controls.

Selecting ten colleges and universities presented numerous problems. First of all, the institutions had to have made their curricular revisions, if any, between 1966 and 1969-70. This restriction was necessary to ensure that both the 1967 and 1974 transcripts would reflect the course-taking behavior of graduates who were under a constant set of requirements, but it appreciably reduced the number of possible candidates.

Second, with our restricted resources, including available time, the number of institutions selected had to be small. Transcript analysis is painfully slow and expensive, and one must consider whether the results are worth the effort. As valuable a technique as transcript analysis is, there does seem to be a limit to what can be learned from it.

Third, since our goal was to determine how students utilize elective time, two-year colleges were eliminated from the sample because transcripts had to reflect institutional requirements for both general education and the major before we could ascertain what courses were elective (as contrasted to a "premajor" course selection for a community college transfer student).

Fourth, factors such as institutional accessibility, the condition of its records, its willingness to release data, and the like also affected our selection.

Despite these constraints, colleges and universities of various Carnegie classifications, sizes, and types of control were selected to provide as wide a spectrum of four-year institutions as possible. The ten institutions that served as case studies are located in five states, vary in size from 1,500 to approximately 47,000 students, and range from major research universities to small liberal arts colleges. Four of the ten are public institutions. Of the private institutions, three are affiliated with religious organizations.

The Institutions and Their Curricula

Table 19 provides an overview of the curricula at the eight institutions that changed and at the two control schools.

1. Liberal Arts College I-Private. This college is unique in the sample because general education requirements were completely eliminated between 1967 and 1974. The only requirements maintained were those pertaining to the major and to the total number of hours required for graduation. By 1974, fully 67 percent of a student's undergraduate program could have consisted of electives.

2. Comprehensive University I-Private. This university is more like a liberal arts college than an institution with a graduate emphasis. Between 1967 and 1974 it decreased its already relatively small proportion of general education, which consisted only of specific requirements in "liberal studies," to 3 percent of the total undergraduate program. In 1967, this college had the highest proportion (45 percent) of electives in the sample. By 1974, this figure had increased to 65 percent.

3. Research University I-Private. This university reduced its general education requirements to 20 semester hours (16 percent of the 124 hours required for graduation) by 1974. Of these 20 hours, 8 hours (two courses) were to be selected from distribution lists in both the natural and social sciences, and 4 hours (one course) were to be selected from the humanities. Since requirements for the major did not change, the 15 percentage point reduction in general education requirements between 1967 and 1974 resulted in an increase of 15 percentage points in the maximum amount of elective time available. At this university, more than one-half of a student's undergraduate program could be chosen from electives.

4. Comprehensive University I-Public. This university decreased its general education requirements by one-third. Most of the reduction occurred in specific course requirements. Two other significant changes at this university were the increases in the proportion of available free hours within general education and of electives. (Free hours within general education increased from zero percent in 1967 to 31 percent in 1974.) The maximum proportion of electives available (outside of general education) increased from 8 percent of total undergraduate work in 1967 to 35 percent in 1974.

5. Liberal Arts College II-Private. This college had three curricular options in 1974. Two were traditional: one required eight interdisciplinary courses, and the other, 60 semester hours of distribution courses. We used the third option, a contractual plan that provided the student with the most curricular freedom, in the catalog analysis. Under this plan a student could design

Table 19. Proportions of general education requirements and elective hours to total graduation requirements, and structure of general education, institutions 1 through 10 (in percentages)

	Proportion of general education to total graduation requirements			*Within general education*									*Maximum proportion of elective hours to total graduation requirements*		
				Prescribed courses			*Distribution courses*			*Free courses*					
Institution	*1967*	*1974*	*Change*	*1967*	*1974*	*Change*	*1967*	*1974*	*Change*	*1967*	*1974*	*Change*	*1967*	*1974*	*Change*
1	31	0	−31	55	0	− 55	36	0	−36	10	0	− 10	31	67	+36
2	34	3	−31	82	100	+ 18	18	0	−18	0	0	0	45	65	+20
3	31	16	−15	20	0	− 20	80	20	−60	0	80	+ 80	38	53	+15
4	60	40	−20	53	25	− 28	47	44	− 3	0	31	+ 31	8	35	+27
5[a]	48	0	−48	84	0	− 84	16	0	−16	0	0	0	25	74	+49
6	41	34	− 7	53	0	− 53	34	83	+49	11	17	+ 6	30	53	+23
7	51	53	+ 2	72	19	− 53	28	81	+53	0	0	0	30	27	− 3
8	55	53	− 2	51	10	− 41	49	90	+41	0	0	0	25	27	+ 2
9	53	30	−23	30	5	− 25	64	95	+31	6	0	− 6	24	35	+11
10	42	38	− 4	100	0	−100	0	0	0	0	100	+100	39	42	+ 3

[a] In order to meet general education requirements at this institution in 1974, students could choose from three plans: (1) eight interdisciplinary courses; or, (2) seven courses in humanities, five in social sciences, three in natural sciences; or else, (3) student designed programs. Alternative (3) provides the greatest freedom and the figures represent this option.

an undergraduate program of which 26 percent consisted of required courses for the major and 74 percent consisted of electives.

6. Doctoral-Granting University II-Public. This university reduced general education from 41 percent of the total graduation requirements in 1967 to 34 percent in 1974. Within general education, required courses were eliminated and distribution and free options increased. Decreases in the requirements for general education and for some of the majors resulted in a gain in the maximum proportion of elective time available to the students.

7. Doctoral-Granting University II-Private. At this institution required general education decreased by two semester hours while the total number of hours required for graduation dropped from 128 to 120. As a proportion of the total, therefore, general education actually increased. But though general education requirements still represented over one-half of the undergraduate work, they changed from prescribed to distribution courses. Because of the decrease in total hours needed for graduation and the subsequent increase in the proportion of general education, there was a net decrease of 3 percentage points in the maximum proportion of available elective work.

8. Research University I-Public. This university's general education requirements in 1974 still comprised over one-half of the student's undergraduate program, reflecting no overall decrease. Within the general education component, however, the number of prescribed courses decreased substantially. This decrease is mirrored by the increase of distribution requirements. In this curriculum, the students do not have any free hours within general education, but the lists of approved distribution courses are lengthy and provide considerable choice. Since the total number of general education hours changed very little and requirements for the major did not change at all, the maximum proportion of available elective hours increased only 2 percentage points.

Summary

While each of the first six colleges and universities changed in two or three significant ways, institutions 7 and 8 changed on only one dimension. Institutions 1 through 6 decreased general education as a proportion of the total requirements for graduation (although the reduction in institution 6 was appreciably less than in institutions 1 through 5). In different ways, each altered the structure of general education (see Table 19). Complementing the drop in required general education was an increase in the maximum proportion of available elective hours.

In comparison, institutions 7 and 8 did not substantially change the proportion of general education required. Although they did significantly reduce the proportion of required courses (column 6 of Table 19) and correspondingly increase the proportion of distribution courses (column 9), they did not dramatically increase the proportion of electives.

Although changes in the curricula of institutions 9 and 10 look similar to some of those at other schools, they were selected as control cases because their changes were implemented too late for 1974 graduates to have taken full advantage of them. Hence, these graduates had programs reflecting requirements similar to those in effect in 1967.

It became increasingly evident throughout the research that no individual college or university, or any group of institutions, could serve as a model of curricular change and consequent student course-taking behavior. Throughout the 1967-1974 period each institution continually incorporated small changes in its curriculum. These fluctuations, which were not apparent in the catalog analysis of general education requirements, the first phase of this study, often confused matters in the transcript analysis.[1]

[1]For example, credit or advanced placement granted for off-campus experience affected the way in which some students met their undergraduate requirements. In one case, credit for ROTC (16 quarter hours, or one term) was dropped, whereas students previously had been required to take ROTC or the equivalent amount of elective work. Since general education requirements changed very little at this institution, this change suggests that many of the 1974 graduates did not take as many electives as the 1967 graduates. Another problem was that one of the control institutions eliminated its requirement that students take a minor, thus drastically reducing the overall requirements for the major. The result was that elective time increased at this institution, but not as a consequence of a reduction in general education.

Transcript Collection and Recording

Because of the many differences among the ten institutions, obtaining a sample of transcripts completely consistent with our design was impossible. Inevitably, some schools were not able to supply the maximum number of transcripts for graduates in each of the six majors. Enrollment growth during this period meant that, in some instances, the number of transcripts for 1967 was not the same as the number for 1974. Moreover, it was not possible to anticipate, identify, and control for the numerous problems that were encountered in the actual process of collecting the transcripts.

To assure as much consistency as possible, however, the following guidelines were established. First, transcripts of bachelor's degree recipients of 1967 and 1974 were collected. They were chosen from six majors (English, philosophy, biology, physics, psychology, and political science) for both years. A random sample of 30 cases per major was requested for each year. (In other words, if an institution was able to meet this request, it supplied a total of 360 transcripts.) Students who had transferred into the college or university were excluded on the grounds that they might have fulfilled requirements differently at another institution. Similarly, no graduates who had transferred from one college or school within the institution to the liberal arts college were included. However, graduates who had been awarded transient credit for work done elsewhere (study abroad, off-campus work, approved summer courses taken at another institution, and the like) were included. Last, the sample was limited to include only those students who graduated within five years of matriculation. (See Appendix C for the statement supplied to all registrars.)

Restrictions and Limitations

While previous research on student transcripts indicated that student behavior would vary from division to division in the patterns of courses taken, limited time and resources required some selection among possible majors. As discussed in Chapter 2, we chose the six majors not because they were equivalent to the other majors in their respective divisions, but for the practical reason that most colleges and universities offered them and did so consistently within the same division. Furthermore, these majors tend to have larger enrollments than others, which ensured a large enough sample in the smaller schools. Even these precautions, however, did not guarantee a large number of students in each field. Hence the number of transcripts available in some majors was limited at a few institutions. As can be seen in Table 20, philosophy and physics yielded numbers less than satisfactory for our survey. The small size

Table 20. Transcript sample: by major, division, and institution

	1		2		3		4		5		6		7		8		9		10		All institutions		Division totals
	1967	1974	1967	1974	1967	1974	1967	1974	1967	1974	1967	1974	1967	1974	1967	1974	1967	1974	1967	1974	1967	1974	
Major																							
English	19	19	*a*	*a*	31	30	5	27	*a*	*a*	29	27	28	24	25	30	15	16	29	31			
Philosophy	4	2	*a*	*a*	5	6	0	5	*a*	*a*	0	2	5	16	3	6	2	3	3	2			
Biology	18	21	*a*	*a*	30	30	6	27	*a*	*a*	6	30	9	9	30	30	9	18	30	30			
Physics	4	0	*a*	*a*	11	4	0	0	*a*	*a*	1	0	4	2	11	4	1	0	3	2			
Political science	18	20	*a*	*a*	30	30	1	29	*a*	*a*	30	20	18	34	30	30	14	12	4	6			
Psychology	11	17	*a*	*a*	29	30	3	29	*a*	*a*	0	24	26	27	29	30	13	14	8	19			
Division																							
Humanities	23	21	61	26	36	36	5	32	14	14	29	29	33	40	28	36	17	19	32	33	278	286	564
Natural sciences	22	21	20	17	41	41	6	27	10	18	7	30	13	11	41	34	10	18	33	32	203	249	452
Social sciences	29	37	37	40	52	60	4	58	25	48	30	44	44	61	59	60	27	26	12	25	319	459	778
Institution																							
By year	74	79	118	83	129	130	15	117	49	80	66	103	90	112	128	130	54	63	77	90	800	994	
Total	153		201		258		132		129		169		202		258		117		169		1,794		

[a] Not available.

of the 1967 and 1974 graduating classes at two of the institutions necessitated selecting transcripts by division instead of by major. Since one university was changing from a teachers college to a comprehensive university, the majority of its graduates in 1967 had taken a highly prescribed bachelor of education program deemed inappropriate for inclusion in the sample. This resulted in an unfortunately small number of liberal arts graduates for the institution in 1967.

We reviewed the catalog with the registrar of each institution to ensure that the precise requirements for graduation each year were known. Discrepancies between catalog prescriptions and courses taken to satisfy requirements were sometimes discovered because of minor changes that had been implemented in the four years before a student's graduation. The registrar could also identify which specific courses, if any, could count as fulfilling both general education and major requirements.[2]

As can be seen in Table 20, the number of transcripts analyzed for the study was 1,794, or 800 transcripts for 1967 graduates and 994 for 1974. There were 564 transcripts for students who had completed a major in the humanities, 452 for those in the natural sciences, and 773 in the social sciences. The sample was large enough to permit establishing various trends and drawing general conclusions. As has been stated, however, compromises were made within the desire for a completely random sample, and it is not known to what extent or in what direction some biases may have been introduced.

Categories

All hours[3] taken to fulfill requirements for a bachelor's degree were recorded on an analysis form according to the scheme in Figure 1.

General Education. Several more or less arbitrary decisions were made in assigning hours to this section. (1) Specified courses were relatively simple to tabulate. In the case of a distribution requirement, however (for example, "three courses in social sciences"), the *earliest* courses taken that fulfilled the specification were assigned to this section. (2) When an institution allowed a course to fulfill both general education and major requirements, it was assigned to the general education section on the assumption that these requirements tended to be met before majors were decided upon.

Major and Other Required Courses. This section of Figure 1 includes all credit hours taken to fulfill the requirements of the major department, excluding hours already assigned to general education, but including courses to fulfill minor requirements where applicable, regardless of whether the minor subject fell in the major division. This last was a problematic decision: combining the number of hours taken in a speech minor, for example, with those taken in biology major gives an inflated picture of specialization within the natural sciences division; on the other hand, placement of a required minor in the section allotted to other-division electives (section 3) gives an inflated picture of the free disposition of electives and the degree of breadth, since most minors were in the major division. Because the allocation of elective time was a primary focus of this analysis, it was decided that required minor courses would be assigned to section 2.[4] Courses in other departments that were required by the major department were also included in this category, whether or not they were classified within the major division (for example, when physics majors were required to take mathematics courses, or when psychology majors—in the social sciences division—were required to take a biology course).

In both sections 1 and 2, courses were assigned to make up at least the minimum number of hours required, and course credits were not split in order to make the hours taken correspond exactly to those required. For example, if 20 hours were required for the major and the student took seven three-credit courses, all 21 hours were assigned to the major category.

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[2]Because confidential student documents were being dealt with, we requested that any information that might identify the student be blocked out or omitted from the transcript.

[3]A credit hour is always the unit of analysis unless otherwise noted. The terms *course* and *credit hours* are used interchangeably.

[4]Two of ten schools had required minors in 1967, and one of ten in 1974. Therefore, this was not a significant influence on the data.

Figure 1. Data collection form

1967
1974

Institution

Major

Breadth	Depth
1. General Education Requirements	2. Major and Other Required Courses
Total required hours: _____ Hours: _____	Hours: _____
Electives	
3. Other-Division Electives	4. Major-Division Electives
(1)_____ (2)_____	a. Major Department b. Other Major Division
Total elective hours: _____ Hours: _____ Hours: _____	Hours: _____ Hours: _____
Total hours: _____ Total breadth hours: _____	Total depth hours: _____

Breadth Electives. Sections 1 and 2 together comprise that portion of a student's program that is restricted by either general education or major (and minor) requirements. Breadth electives contain those hours taken outside of the student's field of specialization, that is, in each of the two nonmajor divisions.

Depth Electives. To this section were assigned all major-division credit hours taken beyond those required by the major department. Within this area, hours were assigned to one of two subsections, according to whether they were taken in (1) the major department itself or (2) other departments within the major division.

Assumptions and Procedures

We compared the breakdown between required and elective hours in 1967 to the breakdown in 1974. The hours assigned to sections 1 and 2 were combined to form the *required* component, with sections 3 and 4 constituting the *elective* component.

Breadth, defined as the extent to which a student branches out into areas beyond her or his specialization, was taken as the sum of sections 1 and 3, the general education component and other-division electives. *Depth* includes all courses taken within the major division, that is, the sum of sections 2 and 4 (plus nonmajor-division courses required for the major).

These definitions of breadth and depth have several limitations. First of all, unless an institution specifically prohibited a student from using one course to fulfill both general education and major requirements, the breadth represented by "general education" contained courses in the student's major area. This need not invalidate the concept of breadth, however, insofar as the assumption made for section 1—that general education requirements tend to be met before major requirements—is accepted.

A second limitation stems from the pressure of what might be called unrequired minors. Student transcripts often revealed a heavy concentration of courses in one or more departments other than the major department (for example, a psychology major with 20 hours in biology), even when a degree minor was not noted on the transcript. Some schools gave students the option of declaring a minor even where it was not required. In that "breadth" implies that a few courses are taken in each of several departments, course concentrations in a single department alter the meaning of this category. Nevertheless, by way of a simplified example, 50 hours taken by choice in two departments (major and unrequired minor), rather than in the major department alone, do represent a "broader" education.[5]

One should approach with caution the interpretation of the breadth figures and an imputation of any particular amount of desire for a liberal education on the part of students. Student course elections may reflect strong faculty recommendations, which would serve to limit the true "free choice" of students. The general education component itself may contain varying amounts of breadth and specialization, depending on the means of fulfilling this requirement available to the student. In smaller schools whose offerings are limited, students may be able to concentrate in only a few specialized areas and must therefore develop the breadth of their programs.

An analysis of depth requires a focus on sections 2 and 4, which contain all hours taken in the student's major division. To the extent that the proportion of courses elected in the major department (depth-within-depth) increased more than the proportion of courses elected in other departments in the major division (breadth-within-depth), greater specialization within the division can be inferred (assuming insignificant change in the number of courses required for the major, a finding of Phase I). The main limitation here is that some institutions set an upper limit to the number of hours students could elect in any one department, thereby putting a ceiling on the number of hours assigned to section 4a, major-department electives. This prevents ascertaining the actual degree of specialization students desire.

To make the transcript analyses comparable across institutions, the total number of hours for each of the sections was expressed as a percentage of the total number of hours presented for the degree. These percentages were then aggregated and averaged over each major, each division (humanities, social sciences, and

[5]The implication that the number of hours in the breadth category conceals some specialization actually reinforces the conclusions found below, namely, that depth has increased since 1967.

natural sciences), and each institution, for each year.[8] In aggregating the percentages for a division in section 3 (other-division electives), the percentages for each of the two other divisions were computed separately: for example, in computing the average percentage of total credit hours elected in humanities as a nonmajor division, percentages in this section for natural sciences and social sciences majors were each totaled and divided by the number of natural sciences and social sciences transcripts, respectively.

Finally, all averages were entered on summary sheets for each year and then on a summary sheet indicating the change from 1967 to 1974. It is the latter summary sheet that forms the basis of the tables presented in this report. Appendix D shows a sample transcript analysis form with the calculated percentages.

Catalog Requirements vis-à-vis Practice

General Education Decline. As indicated previously, eight colleges and universities were selected that had changed the composition of their bachelor's programs in one or both of two important ways: they reduced the proportion of general education requirements to total degree requirements and/or they shifted the structure of the general education program from highly specific course requirements to a pattern of distribution requirements. These selection criteria emerged from the broad patterns of curricular change identified in the catalog survey (Phase I).

Table 21 displays the changes in general education requirements as reflected both by changes in student course-taking behavior and by changes described in catalog statements. The institutions that changed their general education requirements are numbered 1 through 8; those that did not are numbered 9 and 10. (At the latter institutions between 1967 and 1974, students actually increased the amount of general education taken in proportion to total degree requirements.)

Table 21. Percentage point changes in the proportion of undergraduate education spent in satisfying general education requirements, 1967 to 1974, student course-taking behavior versus catalog statements, institutions 1 through 10 (+ = greater proportion, – = smaller proportion)

Institution	*Student behavior*	*Catalog statements*
1	–32.6	–31.0
2	–19.7	–31.0
3	–12.4	–15.0
4	–23.2	–20.0
5	–12.3	–48.0
6	– 9.1	– 7.0
7	– 5.9	+ 2.0
8	– 1.5	– 2.0
9	+ 1.1	–23.0
10	+ 0.2	– 4.0

Institutions 1 through 5 created a significant amount of elective choice for the student. The principal change at institutions 6 through 8 was one of structure rather than an appreciable increase in student electives. The explanation for the wide differences between catalog requirements and actual behavior at institutions 2 and 5 is that the most flexible option of the stated catalog requirements was reflected in our catalog analysis while most students chose more specified options to satisfy the requirements. At institution 9, the changes in general education were not implemented until the fall of 1973. Hence, the 1974 graduates were under the 1967 requirement structure, and the 1.1 percent figure accurately depicts the situation between 1967 and 1974. With these three exceptions, the percentage of the degree in general education requirements, as stated in catalogs, and the percentage in actual courses taken to fulfill those requirements are in general agreement. They are within 5 percentage points of one another except for one instance of 8 points. The discrepancies are somewhat greater because of rounding errors and the simplifying assumptions that were made, but not greatly so. Adding the flexibility normally allowed registrars to certify degrees will bring the figures closer to

[8] In order to minimize calculation imprecision, division and institution percentages were not obtained by "averaging the averages" of each major, but rather by totaling all appropriate percentages and dividing by the pertinent number of transcripts. Given the kind of data with which we were working, this procedure can be justified.

agreement. Furthermore, sometimes the practice is greater than the requirements and sometimes less, and the randomness of the fluctuations also corroborates the findings of Phase I with respect to the extent of general education requirements.

Changes in the Major and Elective Increases. In addition to identifying the degree of change in general education requirements, we also determined the degree of change in major requirements in order to check practice against prescription. This step was also necessary in order to determine the total elective time available to the student.

Like the catalog analysis of Phase I, examination of student course-taking revealed little change from 1967 to 1974 in requirements for the major. Table 22 displays the corroborating data for each institution as well as the concomitant elective increase that resulted from changes in course-taking behavior for general education and the major.

At three of the schools (1, 3, and 5) the decrease in general education requirements was supplemented by a small decrease in major requirements to magnify the increase in available electives. On the other hand, at five of the schools (2, 4, 6, 7, and 8), the net increase in the proportion of electives was diminished by an increase in the number of courses taken in the major. Hence, at these latter five institutions, whatever elective increase did occur was due entirely to a reduction in general education requirements. At institution 8, the net result was a slight decrease in elective time available to students. This institution was initially selected, however, because it had changed the structure of its general education program from a pattern of specific requirements to distribution requirements, not because it had reduced the proportion of general education requirements to total requirements.

To summarize, conclusions drawn originally from the catalog analysis of Phase I were verified in Phase II, the examination of student course-taking behavior. Unless there were different ways to satisfy general education requirements, our catalog analyses agree reasonably well with what students do to meet requirements. Even when there was more than one such option, only a fraction of students exercised the available freedom. The increase in available electives between 1967 and 1974 was

Table 22. Percentage point changes in the proportion of undergraduate education spent in general education, the major, and electives, 1967 to 1974 (student course-taking behavior)

	General education requirements	*Major requirements*	*Electives*
Institutions with large elective increases			
1	−32.6	−3.2	+35.9[a]
2	−19.7	+3.9	+15.8
3	−12.4	−1.7	+14.2
4	−23.2	+9.1	+14.1
5	−12.3	−1.0	+13.4
6	− 9.1	+6.6	+ 2.5
7	− 5.9	+3.7	+ 2.2
8	− 1.5	+1.9	− 0.3
Institutions with small elective change			
9	+ 1.1	+4.0	− 4.9
10	+ 0.2	−7.3	+ 7.1

[a]In this and the following tables, items may not add to totals because of rounding.

Note: Since the major requirements as stated in catalogs varied among departments and were presented as ranges in Phase I, the increases in available electives would likewise be ranges. Hence the catalog data are not shown in this table.

due primarily to reductions in general education requirements. Major requirements did not change in any significant way.

Examining Table 22 from a somewhat different perspective shows that along the dimension "elective increase" (as opposed to "change in general education"), the original distinction between the eight institutions that changed between 1967 and 1974 and the two that did not can be viewed more appropriately as one between five institutions with a large increase in the proportion of available electives and five institutions with little elective change. Hence, for the purpose of analyzing student behavior related to elective choice, this 5-5 breakdown (institutions 1 through 5 versus 6 through 10) is a more meaningful comparison and is employed in the remainder of the analysis.

The Use of Electives

Breadth Versus Depth. When the actual elective choices of students at the five institutions with large elective increases are analyzed, one finds that the greater proportion of the increase in elective time (at four of the five institutions) was spent in what has been labeled *depth electives* rather than in breadth electives (see Table 23). The only institution whose students chose a greater portion of breadth electives was the single school that had eliminated all general education requirements between 1967 and 1974. The atypical result was almost inevitable from that action. In a liberal arts college with limited offerings, all the newly available elective courses could not have been taken in the area of specialization.

For the five institutions with small elective increases (or none at all) a similar pattern of elective choice was found. Even though the number of available electives did not increase greatly at these schools, and actually declined at two of them, students used more of what increase did occur to select depth electives rather than breadth electives.

Breadth Within Depth. Once it was determined that the greatest portion of increased elective time was used by students to select depth electives, the next step was to observe the types of choices taken. At four of the five institutions that greatly increased the proportion of available electives, a greater portion of the student's increased time in depth electives was spent in what has been labeled *major-division electives,* that is, breadth-within-depth, rather than in *major-department electives,* or depth-within-depth. Time spent increased in each category, but the increase was generally greater for the breadth-within-depth. Table 24 displays these findings.

Table 23. Percentage point changes in the proportion of increased available electives spent in breadth and depth, 1967 to 1974 (student course-taking behavior)

	Increase in breadth electives (1)	*Increase in depth electives (2)*	*Total increase in electives (1) + (2)*
Institutions with large elective increases			
1	+20.8	+15.1	+35.9
2	+ 3.4	+12.4	+15.8
3	+ 5.6	+ 8.5	+14.2
4	- 1.4	+15.3	+14.1
5	+ 0.2	+13.2	+13.4
Institutions with small elective change			
6	- 0.7	+ 3.2	+ 2.5
7	- 0.4	+ 2.7	+ 2.2
8	- 1.1	+ 0.8	- 0.3
9	- 2.2	- 2.8	- 4.9
10	+ 1.3	+ 5.9	+ 7.1

Table 24. Percentage point changes in the proportion of increased depth electives spent in depth-within-depth and breadth-within-depth, 1967 to 1974

	Increase in major-department electives (depth-within-depth) (1)	*Increase in major-division electives (breadth-within-depth) (2)*	*Total increase in depth electives (1) + (2)*
Institutions with large elective increases			
1	+3.9	+11.4	+15.1
2	+6.7	+ 5.6	+12.4
3	+1.6	+ 6.8	+ 8.5
4	+5.0	+10.3	+15.3
5	+4.9	+ 8.3	+13.2
Institutions with small elective change			
6	-0.1	+ 3.3	+ 3.2
7	-0.2	+ 2.8	+ 2.7
8	+0.2	+ 0.6	+ 0.8
9	+2.8	- 5.5	- 2.8
10	+1.2	+ 4.7	+ 5.9

A similar pattern of depth-elective choice was found at the institutions with small increases in the proportion of available electives. At four of these schools, major-division electives were chosen more often than were major-department electives. In all, then, the increased specialization was tempered somewhat by breadth-within-depth rather than further concentration, or depth-within-depth.[7]

Changes by Academic Area

Once it was apparent that similar patterns of change in student course-taking behavior occurred irrespective of the amount of increase in available electives, we decided to reanalyze the results for all ten schools to determine whether the three divisions (humanities, natural sciences, and social sciences) exhibit different patterns of elective choice.

For each of the ten institutions, we determined which academic division showed the greatest curricular change (for five kinds of change) and which division showed the smallest. We then determined whether a given change was consistently greater or smaller in any one academic division. For example, the increase in depth electives might have been greatest for social science majors at eight of the ten institutions. The criterion used to affirm that a pattern did exist was that at least seven of the ten institutions yield the same ranking by division for a given change.

Of the five patterns of curricular change we studied—decline in general education requirements, increases in available electives, increases in depth electives, increases in major-division electives, and increases in the total depth of the bachelor's degree program—the latter three changes showed no pattern by academic division. That is, neither the humanities, natural sciences, nor social sciences consistently showed the greatest or smallest increase in these aspects of the curriculum.

At seven of the ten institutions, the decline in general education was greatest for natural science majors. Neither of the other two academic areas consistently displayed the smallest decline of student course-taking in general education.

At seven of the ten institutions, humanities

[7]It must be kept in mind that departmental offerings are limited: students at an institution offering, for example, 16 courses in a department and requiring 14 of them for the major would obviously have found it impossible to increase by very much their depth-within-depth.

majors took the greatest number of additional electives. Students in neither of the other two academic areas consistently took the fewest additional electives.

The Bachelor's Degree, 1974

Breadth Versus Depth. When taken collectively, the previous findings demonstrate a distinctive pattern of change in undergraduate course-taking behavior between 1967 and 1974. Since general education requirements declined appreciably more than major requirements, and since most of the resultant increase in elective time was applied by students to depth electives, the overall depth component of the bachelor's degree increased (with breadth declining concomitantly). This pattern occurred for all five institutions with large increases in available electives and for four of the five institutions that had essentially no increase (see Table 25). The two clusters of institutions differ by about 15 percentage points in the proportions of breadth and depth taken. It is still true, however, that the depth component of the bachelor's degree has increased.

As a consequence of the pattern of choice exhibited by students who were given more elective choice in 1974 than their counterparts were given in 1967, the 1974 structure of student programs in the institutions that increased electives the most (1 through 5) differed greatly from the structure of programs in the other institutions (6 through 10). Table 26 indicates the structural consequence of greatly increased elective time.

As the figures indicate, the 1974 bachelor's degree at the five institutions that did not increase student freedom greatly resembles their 1967 bachelor's degree as well as the 1967 degree of the other five institutions. The overall breadth of the 1974 degree in those institutions that reduced general education requirements declined from 56 to 42 percent; and naturally, depth increased from 44 to 58 percent.

Academic Area Differences. Utilizing the same technique described above, we analyzed the 1974 patterns of student behavior in taking required and elective courses to compare academic divisions. This analysis provides additional information concerning the structural changes in the bachelor's degree. The following is a composite picture of the 1974 bachelor's degree by academic area.

- General education requirements: There was no pattern by academic division.

Table 25. Percentage point changes in the depth component of the degree, 1967 to 1974, and breadth and depth proportions of the bachelor's degree, 1974

	Change in the depth component, 1967 to 1974	*Breadth and depth components of bachelor's degree, 1974*	
		Breadth	*Depth*
Institutions with large elective increases			
1	+11.7	36.5%	63.5%
2	+16.3	34.8	65.2
3	+ 6.7	37.1	62.9
4	+24.5	44.3	55.7
5	+12.1	54.3	45.7
Institutions with small elective change			
6	+ 9.8	50.1	49.9
7	+ 6.3	62.2	37.8
8	+ 2.7	62.5	37.5
9	+ 1.3	47.0	53.0
10	- 1.5	57.1	42.9

Table 26. Component percentages of the bachelor's degree, 1967 and 1974, in institutions with large elective increases and those with small elective change (student course-taking behavior)

	1967		*1974*	
	Institutions with large elective increases	*Institutions with small elective change*	*Institutions with large elective increases*	*Institutions with small elective change*
General education requirements	40	45	20	42
Major requirements	28	23	30	25
Breadth electives	16	15	22	14
Depth electives:				
Major department	3	4	8	5
Major division	13	13	20	14
Total depth electives	16	17	28	19

- Major requirements: At nine of the ten institutions, natural science majors took the most courses to fulfill major requirements. At seven of the ten institutions, humanities majors took the fewest courses to fulfill major requirements.
- Total electives: At seven of the ten schools, natural science majors took the fewest elective hours. Neither of the other two divisions yielded the highest number of available electives in any consistent pattern across the ten schools.
- Breadth electives: Neither the humanities, natural sciences, nor social sciences emerged consistently as the academic area in which either the most or fewest breadth electives were taken. However, at all ten institutions, humanities majors chose more of their breadth electives from the social sciences than they did from the natural sciences. At nine of the ten schools, natural science majors chose more of their breadth electives from the social science than from the humanities. And at nine of the ten schools social science majors chose more of their breadth electives from the humanities than the natural sciences. That is, the natural sciences were chosen least often to fulfill breadth electives.
- Depth electives: There was no pattern by academic area.
- Major-department electives: At eight of the ten institutions, natural science majors took the fewest major-department electives. Students of neither of the other two academic areas displayed a pattern of having taken the most major-department electives.
- Major-division electives: There was no pattern by academic area.
- Total breadth and total depth: At seven of the ten institutions, humanities majors graduated with the greatest total breadth and the least total depth. Neither of the other two academic divisions displayed the least total breadth or the most total depth.

4

Principal Findings

A number of general conclusions can be drawn from the analysis of degree requirements as stated in 1967 and 1974 catalogs (Phase I) and the analysis of the transcripts of graduates in those years (Phase II).

Degree Requirements

While the number of hours required for both the A.A. and B.A. (B.S.) degrees has dropped slightly, the decrease is minor in comparison to the appreciable shift away from breadth (and toward depth, that is, toward specialization) in the actual education received for a four-year degree.

Table 4 documents the small average decrease in total degree requirements—two hours for the bachelor's and one for the associate's. The agreement between catalog requirements and student course-taking behavior (Table 21) suggests that the reduction exists in practice as well as in requirement.

Tables 25 and 26 show the appreciable shift toward specialization, that is, a decrease in the breadth of overall education and a consequent increase in depth. The change was greater for schools that appreciably increased the percentage of the degree that could be fulfilled by electives. However, even with no increase in elective choice, students today are choosing a higher fraction of electives in their field of concentration than they did in 1967.

General Education

Amount. The proportion of a student's undergraduate program in general education is about 22 percent less today than it was in 1967, a drop of about 12 credit hours in four-year colleges and 5 credit hours in two-year colleges.

Table 5 shows the extent of the change. The variation among institutions (see Table 8) extended from complete elimination of all general education requirements to an actual increase. Table 7 displays the number of institutions that increased, decreased, and did not change the proportion of total degree hours that had to be in general education. (The structure of these requirements, however, could and did change, even when the number of credit hours remained constant.)

Structure. There has been a marked move away from specific course requirements toward distribution requirements, for which the student selects from among a more or less specified set of course offerings. Furthermore, free choice has substantially increased in those institutions in which distribution requirements were previously the norm. The general education curriculum today is much less structured than it used to be.

Tables 9 and 12 show the trend away from prescribed courses, and Tables 11 and 14 display the increase in free courses. The increases and decreases in distribution requirements

(Tables 10 and 13) from institution to institution tend to offset one another overall. The absence of a net change is misleading, however, for the institutions increasing distribution requirements are the ones that previously had prescribed, not free, courses. Moreover, those institutions decreasing distribution requirements, in the main, are moving toward more free courses, not toward a prescribed pattern. That is, an appreciable number of institutions have changed the structure of general education, and the trend of this change is away from a fixed pattern. (The range of institutional change is also considerable.)

Content. The number of classes required in each of the disciplinary areas—humanities, natual sciences, and the social sciences—has declined.

The typical general education program requires a higher percentage of humanities than natural sciences. On the average, the decrease in required course work was greatest in the humanities and least in the natural sciences. But while the absolute decreases differ for each division, the percentage decreases were about the same.

"Basics." The number of institutions requiring English, a foreign language, and mathematics as part of everyone's general education declined appreciably from 1967 to 1974—from 90 percent of the institutions surveyed to 72 percent for English, from 72 to 53 percent for foreign language, and from 33 to 20 percent for mathematics. (Enrollments in these areas, however, were sometimes higher in 1974 because a few majors still required these subjects, especially the latter two.) In addition, the percentage of colleges and universities requiring physical education declined from 86 to 55 percent.

Tables 15 through 18 show the changes in English, foreign languages, mathematics, and physical education, respectively. Public two-year colleges differ from the four-year colleges in several respects. Few required a foreign language or mathematics in either 1967 or 1974. They have, however, required English and physical education. Furthermore, not as many of these institutions have eliminated these requirements as have their four-year counterparts.

By way of comparison, Dressel and DeLisle (1969) found that 85 percent of their sample four-year institutions required a foreign language in 1967, a figure higher than it had been in 1957. If one excludes two-year colleges from the figures in Table 16, the percentage of four-year institutions requiring a foreign language was 85 percent in 1967, compared to 54 percent in 1974. The former figure serves as a check against the study by Dressel and DeLisle, and the comparison also dramatizes what has happened to foreign languages as a part of general education.

The Major

Amount. There has been essentially no change in the number of courses individual majors require and in the fraction of the total degree requirements a major represents (about one-third).

Tables 5 and 26 document this conclusion. In both catalog statements and in student behavior, regardless of whether an institution had otherwise changed its curriculum, little has been altered in the amount of course work required or taken to complete a major. It was not possible to ascertain whether the requirements within majors remained specified or had been changed to give students more choice.

Disciplines. The natural sciences require the largest percentage of course work for the major and have the lowest proportion of electives outside that division.

Since general education is typically an institutional rather than a divisional requirement, the academic area requiring the most courses for its majors will necessarily allow the fewest electives. Physics and biology students use about 37 percent of their degree in fulfilling major requirements. This is about 10 percentage points higher than for students in either the humanities or social sciences. According to our transcript analysis, humanities students took the fewest courses in their majors, but the difference from social science majors was small.

Electives

Amount. The number of electives students may submit for a degree, after general educa-

tion and major requirements have been met, has increased appreciably (from 37 to 52 percent of total hours).

Tables 5, 6, and 22 demonstrate the increases both in practice and in institutional pronouncements.

Use. No matter how much the number of available elective courses increased from 1967 to 1974, a much greater share of elective time was spent in the division of specialization than in either of the other two divisions, irrespective of disciplinary concentration. The overall course-taking pattern for the degree thus shows a significant increase in depth and a corresponding diminution of breadth (see Tables 23 and 24). However, the elective courses were more likely to be taken in other departments within the major division rather than within the major department. If courses outside a student's major department but within her or his area of concentration can be called breadth, then the trend has been for students to select breadth-within-depth rather than depth-within-depth. These trends toward depth were equally true for students who had no absolute increase in the number of electives in their program.

Discipline. When students elected courses outside their major division, the courses were more likely to be in the humanities or social sciences than in the natural sciences.

Electives used as breadth by students were not randomly distributed across academic areas. Social science majors used their breadth electives in the humanities, and humanities students opted for the social sciences. Neither took as many natural science courses. Put differently, with fewer general education science requirements and with a larger share of the increased elective time spent in the field of specialization, humanities and social science graduates took less natural science in 1974 than they did in 1967.

Institutions

While almost every college and university changed to some degree over the time period, and while there was great variation in the extent of change across institutions, private colleges changed more frequently, and to a more pronounced degree, than did public institutions. The less selective private four-year colleges changed the most, and the public universities and community colleges changed the least.

Tables 6, 7, 9, 10, 11, 15, 16, 17, and 18 provide data by institutional type and show the range and extent of change. No distinctive patterns emerge, especially when recognition is made of the number of institutions of each type. The next chapter returns to this point.

5
Implications

This final section of this report presents some related findings; observations on the faculty role in curriculum change; selected implications of our survey results for students, colleges and universities, faculty, and society; and suggestions for further inquiry.

Related Findings

Change by Institutional Type. While other research has shown that institutional type is a good predictor of many kinds of student and faculty behavior, this was not found to be the case with the organization of an institution's curriculum. Many studies have supported Riesman's serpentine metaphor of the mid-1950s, the observation that institutions down the status scale imitate those closer to the head than they are. According to the classification used in this study, however, which does distinguish institutions on a selectivity basis, there was no systematic relationship between what has happened to requirements—be they general education, major, elective, foreign language, or whatever—and the type or prestige of the institution.[1]

To the extent that there was any pattern at all by kind of institution, more private institutions altered their requirements than did publicly controlled institutions. Also, the more selective (category I) were more likely to change than the less selective, the exception being those in liberal arts II—the category of institutions that made the greatest individual shifts in general education programs with respect to requirements. The institutions that changed their general education programs could not be distinguished by Carnegie type, nor could kinds of programs or requirements. Put differently, institutional type is not a predictor of either program requirements or extent of change.

One should note, however, that these results are partly artifacts of the schema. There were more liberal arts colleges in the sample than universities, and all but six are private. Furthermore, public institutions are typically larger than private ones, and it could well be that institutional size rather than control is the reason that fewer public institutions changed.

The institutions undergoing the most dramatic change are also preponderantly in the East—New York, Pennsylvania, and New England. Of course, this may be no more than a statistical consequence of the general nonrandom geographic distribution of institutions. However, proximity theory, communication linkages, and competition for students may be highly important explainers.

The less selective liberal arts colleges apparently have implemented more curricular

[1]Here, and no doubt elsewhere in this report, some will accuse us of favoring those institutions that have changed, and others will read into our words a bias against change. Despite predilections we individually may have, the merits or limitations of the kinds of change are a topic for a separate presentation. Here we have tried to report only the occurrence of change and have attempted to remain neutral with respect to its virtues.

change than other institutions (particularly change that gives students more options than they have had in the past). If this was an institutional response to declining enrollments, it appears to have been at best a delaying action. The national indications suggest that these institutions are still suffering greatly, especially regarding the recruitment of students. Whatever short-term advantages these colleges may have gained by launching distinctive and different programs, they have not been sufficient to stem the tide. And, as the data indicated, not all students used available electives. Freedom of curricular choice does not seem to be a critical factor in explaining why students select a particular college.

Extent and Consequences of Changes. From one vantage point there has been appreciable change within general education. From another perspective, however, not much that is fundamental has been altered. In either case, questions can be raised about the educational consequences of the changes.

In contrast to the Dressel and Delisle study (1969) of four-year colleges from 1957 to 1967, which found the cumulative differences negligible, our study found that most institutions have changed requirements since 1967. Only 12 of the 271 made no changes at all. One of these, and the only case in the sample, was a liberal arts college with no general education requirements in either 1967 or 1974; seven were two-year institutions.

Within general education, taking the opportunity to select whatever one wishes (that is, no requirements) as one end of a scale of student freedom, and a full, prescribed set of courses as the other end of the scale, with distribution requirements of various amounts as intermediate points, then the dominant movement—from 1967 to 1974—was toward student freedom. About 1 percent of the institutions jumped from one end to the other, from essentially a completely prescribed program to full student choice. Approximately 10 percent increased student choice by allowing more free courses but maintaining what had been prescribed. Another 1 percent increased free choice and simultaneously increased fixed requirements. About 4 percent reduced both requisites and distribution requirements (and hence increased the proportion of free choice). The overwhelming move, however, was from prescription to distribution, with no increase in free choice. Furthermore, the absence of an increase in free choice was found most typically in institutions that had no free choice in 1967. That is, the modal change kept general education requirements a combination of prescription and distribution, with no free courses.

This last observation returns to the "contradiction" stated at the beginning of this section, namely, that there both was and was not appreciable change between 1967 and 1974. If the existence of any requirement—whether it be a single specified course or even one from a large set—is still not viewed as freedom by students (and faculty) and meets resistance as a "requirement to be gotten out of the way," the curriculum has not changed much. But for those who believe there are essential ingredients in an education and that a common set of learning experiences provides the transmission of a culture, a foundation upon which advanced courses can build, and a sense of shared community, there has been considerable change. Prescribed courses and structured programs were much fewer in 1974 than they were in 1967.

Direction of Change. The direction of curriculum change appears to be a two-stage affair. The institutions that shifted toward increased student choice within general education were preponderantly ones where general education requirements were in a distribution pattern. Those institutions that had a high percentage of fixed requirements moved toward a distribution arrangement. As said above, only about 1 percent went from a high percentage of fixed courses to a high percentage of free choice. It is not known if those who had many distribution requirements (and who increased free choice) had formerly highly prescribed requirements, or if those who did not change their distribution requirements to electives were more recent arrivals to a distribution model. Nor is it known if those that moved to distribution requirements from a prescribed pattern will later move toward greater student choice. The phenomenon, however, suggests a stepwise pattern.[3]

[3]The percentages of distribution courses to general education requirements in 1967 and 1974 are about equal. The percentage of fixed courses is down from 1967, and the percentage of free courses is up. But the free courses came from the distribution category, and that loss was more than made up by the institutions that reduced their percentages of fixed courses.

Types of General Education. Writers on liberal education have been able to generate distinctive types and organization forms. General education requirements have historically placed survey courses during the freshman and sophomore years. The arguments for this arrangement were not only that a general culture was to be transmitted, but also that the student was to have a broad education before he or she chose an area of specialization. Other educational commentators have argued for a parallel structure that would allow specialization and liberal education to complement one another throughout the undergraduate years. Still other philosophers have advanced an organization requiring senior integrating courses.

People reading this literature are led to infer that colleges and universities are organized around one of these few models. In both catalog requirements and in practice, however, neither distinctive types nor clusters of types emerged in this research. When a three-coordinate grid of required, distribution, and free courses in general education was plotted for all four-year institutions for both 1967 and 1974 (joining the same institution together by threads and color-coding by institutional type), only a few bare spots were visible. The dominant and overwhelming pattern was a random scatter of institutional grid locations in both 1967 and 1974. To be sure, there were a few institutions of a pure type (all required courses or no requirements, for example), but these were exceptions.

Together, the vast majority of institutions managed to present almost every imaginable combination of required, distribution, and free courses. To generalize, one could say that the "typical" institution in 1974 did not give students substantial freedom of choice—although one-third of the institutions had a greater portion of free courses making up their general education requirements in 1974 than they did in 1967. Most institutions had a general education portion of the B.A. or A.A. that combined specfied courses for all students with distribution courses from selected areas. A fewer number had the above combination plus varying amounts of unspecified, that is, free, student choice. Typologies, then, may exist in the theoretician's eyes and may flow from her or his pen, but they do not correspond to institutional practice.

Diversity. The question of diversity in U.S. higher education—that is, the variety of options a student has when selecting a college or university—continues to be important. Some people link diversity with the need to ensure the continuation of the private sector of higher education. Most advance institutional heterogeneity as a genuine strength of this country's higher education system.

In their research, Hodgkinson (1971) and Pace (1974) found some increase and some decrease in institutional diversity, but came to no decisive conclusion. The same finding follows from this investigation. While there has been a trend from full requirements toward free selection, there is still a wide range over the full spectrum. Institutional curriculum changes do not seem to have lessened the diversity among institutions in this country in any significant way.

The Movement away from Natural Sciences. The relative failure of students to elect courses in this area when options are available is often attributed to a lowering of standards in colleges and universities. That is, the natural sciences are frequently viewed as rigorous subjects making demands to which today's students will not submit.

This assertion, really a hypothesis, is difficult to refute with hard data, and the evidence collected here cannot attest to either the truth or falsity of this explanation of declining enrollments in the natural sciences. On the other hand, the investigations by Levine and Weingart (1973) and by Ciampi (1974) indicate that other explanations may be closer to the truth. Although Ciampi found no diminution of quality, he did find that students tended to change majors frequently and that the change was irrespective of which subject they began in. Since moving into the natural sciences without the prerequisite background is more difficult than moving the other direction, it is not surprising that enrollments are moving away from the natural sciences.

Moreover, the sciences tumbled from the high status they were accorded shortly after their successes of the late 1950s and early 1960s in the space program and their association with war and national defense during the middle and late 1960s. Declining numbers of natural science majors may be as much a rejection of

science as it is an indication of either the ability or willingness of students to participate in serious study.

Two-Year Colleges. Comparing two-year colleges with other institutions requires several cautions. In the first place, two-year colleges require proportionately more general education than do four-year institutions. (In 1967 general education requirements were 59 percent of the two-year program and 43 percent of the four-year program.) But because only half as many semester hours are involved, converting percentages to semester hours reverses the impression the data suggest. About 37 hours (in 1967) of general education were required for an A.A. degree, but 54 hours were required for a B.A. degree.

Second, and as a corollary, the smaller decline in general education requirements in two-year colleges—5 versus 10 percentage points in four-year colleges—represents a nearly equal number of credit hours, again because the totals differ by a factor of 2.

Third, some differences in the kind of change, including no change, distinguish the typical two-year from four-year institution. The two-year schools have less "freedom" (as described above) and have moved the least toward it.

Two-year colleges also have a reputation for innovation that the data of this inquiry did not support. However, this investigation focused only on requirements for the associate in arts degree. In the liberal arts these institutions must provide their students with an education that will be accepted by a wide variety of institutions—not just a nearby state college, but also liberal arts colleges and universities, public as well as private. Community colleges do not have the option of experimenting with general education; to do so could penalize students who take courses that would not be accepted in the transfer process. Community college experimentation in the vocational-technical fields or in responding quickly to community needs were not examined in this investigation. (Other studies do support curricular innovativeness of two-year colleges. See, for example, Park, 1971.) For these reasons, an interpretation of "conservativism" in the two-year college is not warranted by what has been reported here.

Faculty, the Curriculum, and Some Arationalities

In the past, colleges and universities—particularly their faculty—have responded to new social conditions by altering the curriculum. Immediately after World War II, for example, with the influx of large numbers of people from backgrounds much more diverse than at any previous time in this country's history, the design of a common curriculum fueled the general education movement. In the late 1950s, Sputnik precipitated curricular revisions in the high school as well as in the colleges and led to a greater emphasis on science.

It is not surprising that when a new set of conditions arose in the late 1960s—a society divided over war, intense citizen conflict surrounding the civil rights movement, and a general student move for a voice in institutional decision-making—college faculty would make major curricular revisions. In this instance, however, the faculty response to societal discontent and to student dissatisfaction with the government and its leaders had an oblique relationship to the forces precipitating change. The major trend in undergraduate education was the removal of or reduction in curriculum requirements. One can infer that the faculty attempted to remove themselves from a position of authority, supposedly because all authority is evil. But how they hoped to deal with social conditions by reducing their curricular authority is not clear. (Indeed it looks as if some faculty today are wondering why they did what they did.)

Our intensive campus interviews revealed about as many different causes for curriculum changes as the number of colleges and universities visited. In one instance, a new president assumed office with a mandate to reverse a "slipping" institution. At another, structural reorganization of academic units for a more rational management necessitated reapportioning course requirements. In a third, prolonged tenseness—exacerbated by the uncovering of an FBI agent agitating students to bomb ROTC—was relieved by an unplanned and spur-of-the-moment decision to excise all requirements. Still another institution showed signs of faculty professionalism; that is, grant money supporting research and general education courses was seen as a drain on energies better spent in specialization. In short, the reasons faculty voted to

change general education requirements were many and frequently complex. Tracing the outcome to its cause seldom uncovered protracted faculty debate on the aims of education or on what knowledge was most worth having.[3]

The faculty have not relinquished control over requirements for the major, however. Thus the faculty as a whole continue to assert that they know what is required to become a specialist. But by loosening the requirements in general education, the faculty are not only seeming to say that general education is not as important as it once was, but also that they are no longer as sure what an "educated" person is.

Not so very long ago, leaders in education said that one must first of all be an educated person, then a lawyer, doctor, or economist. That is, the concern for the education of the whole person, and particularly for her or his liberal education, came first. Today, there is less consensus on what constitutes a liberal education, and, as if by default, the choices have been left to the student.

Under today's "free" curriculum (and while it may not be completely free in all institutions, it certainly is much more so than it was), the first inference one is likely to draw is that it is an open market in which students select whatever courses they wish, and that control has thus moved from the faculty to the students. A more careful examination, however, indicates that this is a deceptive or, at the very least, misleading conclusion. Ostensible student freedom is not necessarily the equivalent of student control.

In the early colleges and universities in this country, the administration established the curriculum, but by the twentieth century, as standards advanced and faculty sophistication and scholarly expertise increased, control of the curriculum—the specification of courses for a degree, the composition of a major, and the specification as to what constituted a liberal education, that is, both depth and breadth—moved into the hands of the faculty. The administration has always maintained a veto power in case of major revisions, and administrators have also continued to be instrumental in establishing the pattern of course offerings as well as in the recruitment and selection of faculty. But even staffing became more and more a faculty prerogative as faculty search committees operated not only for colleague recruitment but also in the selection of administrators. Faculty also became increasingly influential in the selection, retention, and advancement of their peers. In these ways, and up until the most recent times, the faculty increased and enlarged its control of the curriculum.

When there was a required general education program in which, for example, everyone took Rhetoric 101, then faculty could claim (and be uncontested) that they needed faculty positions in English in order to teach the entering student body (some ratio of students to faculty having been usually agreed upon, or a class size established for an English section). If the size of the student body increased, the English faculty could add a position without question. Furthermore, the faculty could dictate the specialty of the new employee with the knowledge that he or she would also be teaching Rhetoric 101.

But where does power over the curriculum sit when there are no requirements? Looking at individual examples can be misleading. For example, in the heat of the Vietnam and Cambodian wars, Kent and Jackson State, and the murder of Martin Luther King, a faculty member at one college rose during the last faculty meeting of the year and moved the abolition of all course requirements. With a second of this motion and a minimum of debate, but with no preliminary ground work or alternative plan, with no curriculum committee study, and no question or objection from the floor, the motion was passed and became the (nonexistent) requirement of the institution. It was not vetoed by the president or the board, and the college began its next academic year with no required curriculum. This case represents the ultimate in faculty control.

To take an example at the opposite extreme, more than one college president, in response to minority-student demands, established a department of Afro-American studies and created new majors and new degrees without debate or approval by anyone else. These

[3]We saw but scattered instances where new courses were created to deal with the precipitating events. Ecology-type offerings emerged in the sciences, cross-discipline study remnants from World War II were sometimes revitalized, and urban sociology received a minority-group emphasis. But the curricular freedom that the faculty created was only infrequently enriched by offerings that dealt with the issues that had led to those options' being available to students in the first place.

were cases of complete administrative power, uncontested by faculty. (It is difficult to know just what the faculty might have done given a chance. These were cases of urgency, and, as is known, when such occasions arise power quickly escalates to the top. No doubt some faculty wholeheartedly wanted the new units approved; equally certain is that other faculty did not. At any rate, the faculty did not enter the debate, and the result was administrative control.)

To return to the question of who has control when there is no required curriculum, it appears that under these conditions the faculty give up power and place it back in the hands of the administration.[4] Even when the faculty controlled most matters of staffing, the dean and the registrar have always enjoyed more control than most observers recognize. They set the place where courses will be taught—thus fixing the size of the class. They can schedule popular classes at unpopular hours and schedule others at popular hours to guarantee enrollment for professors who ordinarily would not have many students. They can set arbitrary ceilings on course enrollments, and they can cancel courses whose enrollments are less than some (arbitrarily) fixed number. Deans and registrars have probably shifted more student registrations than either requirements or advisers have.

Perhaps more importantly, administrative control is inflated during today's increasing costs, budgetary retrenchment, and declining enrollment growth. A dean can now respond to a faculty department's request for a new member by simply asking: "If there is no course that everyone has to take, how can you tell me that you need a professor with such and such qualifications?"

The faculty cannot.

Thus, in their response to what seemed to be a student request for curricular freedom, the faculty relinquished their control of the curriculum (though it is by no means certain that the faculty wanted to give up that control or knew that they were doing so) not to the students, but to the administrators, who had originally possessed it.

[4]Conrad (1975) utilized data from four of the institutions in our survey to develop a theory of curricular change.

Implications

For Students. Increasing the free choice of students ought to help them learn. If students can take what they want rather than being required to cover areas in which they have less interest, they should increase the chances for genuine learning to take place. In a similar vein, having to make responsible decisions about their academic program should foster their growth and maturity.

On the other side of the ledger, no institutional requirements means that students will not have many courses in common. In some institutions, common experiences are important in building a sense of community. When all students read the same works, student exchanges outside the classroom enrich learning and serve as a shared experience on which they can build. This feeling of community may suffer, at least as it is built upon a common curriculum, and new strategies will have to be devised to accomplish this end.

For Colleges and Universities. As indicated above, administrators now have much more power and control over the curriculum. They can curtail programs that are undersubscribed and, at the same time, they can initiate new programs much more quickly than faculty curriculum committees. The greatest power administrators now have is in staffing. They have lost control, however, over the content and requirements for graduation.

For faculty, now that they have students who want to be in their classes, rather than being there under protest, one could expect teaching problems to diminish and real improvement in learning to take place. In this sense, the personal rewards of the classroom for both faculty and students ought to be greatly increased.

At the same time, however, faculty face an increasingly uncertain future. Faculty careers no longer have the assurance they had in the past. Tenure has not been a protection against retrenchment—nor has any other single factor, except student enrollment. Course registration has become critical because faculty jobs depend on students taking their courses. Now that nothing requires a student to take what Professor Y happens to like to teach, uncertainties must increase, hardly a positive outcome for the institution or the faculty.

Predictions of future enrollments and course demands based on past experiences will be more difficult to make. There are no principles for scheduling classes or staffing departments in an open market in which demands for courses seem to fluctuate with reports on society's need for certain skills, reports that change most rapidly and are unpredictable in general. In addition, student recruitment and retention will be more uncertain than they have been. Students will have no special commitment to a curriculum or program if none is required, and will be able to transfer easily from institution to institution. Operations will become more complicated and costs will increase.

For Society. In an increasingly complex world, expertise has a high value. The new curricula allow students to concentrate in a narrow area, and, as the transcript analyses showed, this is what students are doing. The current curriculum trends will aid society by allowing people to become even more specialized than they have been in the past.

At the same time, however, not all of society's problems can be solved by specialists. In fact, one might argue that society does not need more specialists, for the complexity of the world's problems requires people with a broad and liberal education, people who understand interrelationships between the parts of a problem and who have mastered the art of learning so that they can shift the focus of their efforts when social needs require it.

Further Study

Transcript analysis has been used here for the first time in a curriculum study. It has answered questions for which speculation has heretofore had to serve as truth. At the same time, developing the technique has raised questions about the method itself. The simplifying assumptions that had to be made distort the findings to an unknown degree, and while we feel that the introduced errors are slight and relatively unimportant, our assumptions need to be checked.

Also, while transcript analysis allows monitoring actual education practices—which catalog analysis does not—it is a slow and expensive operation and has limited usage. Hence, while we do not advocate frequent use of transcript analysis, education practices should be monitored at regular intervals. Perhaps repeat studies should be conducted every half dozen years. A variety of institutions are included in this analysis, and, if they would be willing to cooperate again six years from now, they—and all higher education—would benefit from identifying their trends and new practices.[5]

Discussions about the kinds of education students receive still rest on the questionable assumption that outcomes—the kinds of persons produced and the knowledge, skills, and attitudes they attain—are determined by the courses students take, irrespective of the process of education. Catalogs nonetheless advertise independent study, credit by examination, study abroad, tutorials, honors papers, senior theses, classes in residence halls, and a whole host of "innovative" learning devices. Transcripts do not show the extent to which these techniques are used.

We feel that the processes of education have an importance that matches that of the content of a course. A study needs to be conducted to see the extent to which various educational techniques actually affect students.[6]

This study focused on undergraduate education, and essentially on breadth and depth—general education and the area of concentration, or major. The principal concern of tomorrow will be professional education. What kinds of knowledge best prepare people for careers? Students seem to feel that a liberal education is inadequate as a preparation for a professional education, while professional-school administrators are saying that they want liberally educated undergraduates and that preprofessional training should somehow be different than it has been.

A study needs to be conducted to examine the link between the preprofessional and the professional. Who is admitted into medical school when ten apply for every position? Is there no preferred curriculum for a law school? How will students know what to take to best

[5]The Western College Association, in conjunction with Educational Testing Service, has begun a related study employing this technique (personal communication, October 1974).

[6]As Mattfeld (1974) reminds critics, a course is neither liberal nor professional by itself, but, rather, depends upon how it is taught.

prepare themselves for the profession they have in mind? Are there differences between the more "stable" professions (medicine and law) and those that are more rapidly increasing their educational requirements (for example, nursing and social work)?

These and other questions are of the utmost importance in better understanding the educational processes of colleges and universities in this country.

The most difficult questions remain unanswered. We know that students select institutions on the basis of their image and the kinds of programs they have. The student's choice of an institution determines to a large extent the education he or she will get. But while we have evidence that student development is influenced by their peers, the particular institution they attend, and their participation in their education, we remain unable to determine whether one curriculum has a differential impact from another, or in what ways. Large amounts of energy are invested in producing alternative programs and teaching processes.

Do they make a difference?

This ultimate question needs to be addressed for the sake of everyone—students, colleges and universities and their personnel, and a society that supports and is served by the graduates of its institutions.

APPENDIX A
Letter to Presidents

Dear President

Under Clark Kerr's leadership, the Carnegie Council on Policy Studies in Higher Education has commissioned our Center to conduct a study relating to undergraduate education. As you know, assertions abound that many fundamental changes have taken place in both the requirements and practice of undergraduate education. The major alterations are supposed to have begun in the late 1960's. The claimed areas of change include liberal-general education requirements, amount of specialization, enrollments in foreign languages, and a host of other important educational issues with far reaching consequences.

What is not known is the extent to which changes have in fact taken place and what the actual nature of the changes have been. Our inquiry intends to answer these questions for the Carnegie Council's policy deliberations.

We are beginning our study by taking a national random sample of institutions (by Carnegie types). Your institution has emerged in this selection process. I trust you agree with the importance of this investigation and will participate with us in this important undertaking. Our demands upon you are minimal, yet the contribution is very great.

All we need are catalogues for both the 1966-67 and the 1973-74 academic years. (We know that sometimes older catalogues are in short supply. If this is the case with your 1966-67 edition, you can be assured that we will return it to you later next Fall when we complete the first phase of the study.) In addition, if there are materials which are used when transcripts are sent out, we would also like to have these.

In order to ensure accuracy we would like to know if there have been degree requirement or curricular changes during the 1967-74 period that might escape our detection by looking only at the two ends of the time span. If there are other kinds of materials in the curriculum area that you might send us—announcements that went out to the public, faculty study reports, or the like, they too will be appreciated. If new proposals are under way, naturally, we also would like to know these. If you have analyses on your undergraduate curriculum, these too would be of great value to us. Naturally, if you wish to supply any such information on a confidential basis, we would respect your wishes and treat whatever you sent us accordingly.

When we have completed ascertaining patterns of undergraduate education and noting changes, we will then select a much smaller number of colleges and ask them to engage in a much more extensive study of the performance of their own students. This second phase will have us conducting transcript analyses; we can assure you that we will observe strict confidentiality. Our aim is to generate valid information on a national scale, not to bring attention to any one institution.

If you have any questions about the study, please do not hesitate to give us a call.

For the research staff and myself, I am

Cordially yours,

Robert T. Blackburn
Professor of Higher Education

Ellen Armstrong
Clif Conrad
Tom McKune
Jim Didham

RTB/sme

APPENDIX B

Sample Institutions by Carnegie Classification

Research University I-Public

	State
1. Ohio State University	Ohio
2. Purdue University	Indiana
3. University of California at San Diego	California
4. University of Colorado	Colorado
5. University of Florida	Florida
6. University of Hawaii	Hawaii
7. University of Illinois	Illinois
8. University of Iowa	Iowa
9. University of North Carolina	North Carolina
10. University of Utah	Utah

Research University I-Private

1. California Institute of Technology	California
2. Columbia University	New York
3. Cornell University	New York
4. Duke University	North Carolina
5. Johns Hopkins University	Maryland
6. University of Miami	Florida
7. University of Pennsylvania	Pennsylvania
8. University of Rochester	New York
9. University of Southern California	California
10. Vanderbilt University	Tennessee
11. Washington University	Missouri
12. Yeshiva University	New York

Research University II-Public

1. Auburn University	Alabama
2. Colorado State University	Colorado
3. Florida State University	Florida
4. Indiana University	Indiana
5. Iowa State University	Iowa
6. Oregon State University	Oregon
7. University of Cincinnati	Ohio
8. University of Nebraska	Nebraska
9. University of Oklahoma	Oklahoma
10. University of Oregon	Oregon

Research University II-Private

1. Boston University	Massachusetts
2. Brandeis University	Massachusetts
3. Brown University	Rhode Island
4. Catholic University of America	Washington, D.C.
5. Emory University	Georgia
6. George Washington University	Washington, D.C.
7. Illinois Institute of Technology	Illinois
8. Rice University	Texas
9. Syracuse University	New York
10. Tufts University	Massachusetts
11. Tulane University	Louisiana

Doctoral-Granting University I-Public

1. Kent State University	Ohio
2. North Dakota State University	North Dakota
3. Ohio University	Ohio
4. University of Alabama	Alabama
5. University of Delaware	Delaware
6. University of Idaho	Idaho
7. University of Maine	Maine
8. University of Missouri	Missouri
9. University of North Dakota	North Dakota
10. University of South Carolina	South Carolina
11. University of Southern Mississippi	Mississippi
12. University of Vermont	Vermont

Doctoral-Granting University I-Private

1. American University	Washington, D.C.
2. Brigham Young University	Utah
3. Dartmouth College	New Hampshire
4. Fordham University	New York
5. Georgetown University	Washington, D.C.
6. Howard University	Washington, D.C.
7. Lehigh University	Pennsylvania
8. Marquette University	Wisconsin
9. Northeastern University	Massachusetts
10. University of Denver	Colorado
11. University of Notre Dame	Indiana

Doctoral-Granting University II-Public

1. Bowling Green State University	Ohio
2. Illinois State University	Illinois
3. Northern Illinois University	Illinois
4. North Texas State University	Texas
5. Texas Tech University	Texas
6. University of Akron	Ohio
7. University of Nevada at Reno	Nevada
8. University of Toledo	Ohio
9. University of Wisconsin at Milwaukee	Wisconsin
10. Western Michigan University	Michigan

Doctoral-Granting University II-Private

1. Adelphi University	New York
2. Baylor University	Texas
3. Clark University	Massachusetts
4. Duquesne University	Pennsylvania
5. Memphis State University	Tennessee
6. Southern Methodist University	Texas
7. Texas Christian University	Texas
8. University of the Pacific	California
9. University of Portland	Oregon
10. University of Tulsa	Oklahoma

Comprehensive University I-Public

1. Alcorn Agriculture and Mechanical College	Mississippi
2. Appalachian State University	North Carolina
3. Armstrong State College	Georgia
4. California Polytechnic State University	California
5. California State University at Chico	California
6. Central Michigan University	Michigan
7. College of William and Mary	Virginia
8. Eastern New Mexico University	New Mexico
9. Fort Hays Kansas State College	Kansas
10. Framingham State College	Massachusetts
11. Georgia Southwestern College	Georgia
12. Idaho State University	Idaho

13.	Kansas State College at Pittsburg	Kansas
14.	Kearny State College	Nebraska
15.	Louisiana Technical University	Louisiana
16.	McNeese State College	Louisiana
17.	Minot State College	North Dakota
18.	Morgan State College	Maryland
19.	Nichols State University	Louisiana
20.	North Carolina Agriculture and Technical State U.	North Carolina
21.	Northeast Louisiana University	Louisiana
22.	Prairie View Agriculture and Mechanical University	Texas
23.	Rutgers University at Camden	New Jersey
24.	State University of New York at Brockport	New York
25.	Tarleton State University	Texas
26.	University of North Carolina at Charlotte	North Carolina
27.	University of Northern Iowa	Iowa
28.	University of South Florida	Florida
29.	University of Tennessee at Chattanooga	Tennessee
30.	University of Wisconsin at Whitewater	Wisconsin
31.	Virginia State College	Virginia
32.	West Georgia College	Georgia
33.	Winona State College	Minnesota

Comprehensive University I-Private

1.	Elmira College	New York
2.	Fairfield University	Connecticut
3.	Fairleigh Dickinson University	New Jersey
4.	Manhattan College	New York
5.	Russell Sage College	New York
6.	Seattle Pacific College	Washington
7.	Seattle University	Washington
8.	Simmons College	Massachusetts
9.	Suffolk University	Massachusetts
10.	University of Evansville	Indiana
11.	University of Hartford	Connecticut
12.	University of San Francisco	California

Comprehensive University II-Public

1.	Boston State College	Massachusetts
2.	California State College at Stanislaus	California
3.	Central Washington State College	Washington
4.	Eastern Oregon College	Oregon
5.	Glassboro State College	New Jersey
6.	Kutztown State College	Pennsylvania
7.	Lake Superior State College	Michigan
8.	State University of New York at Fredonia	New York
9.	University of Arkansas at Pine Bluff	Arkansas
10.	Wayne State College	Nebraska
11.	Western New Mexico University	New Mexico
12.	Worcester State College	Massachusetts

Comprehensive University II-Private

1.	Concordia Teachers College	Nebraska
2.	Grove City College	Pennsylvania
3.	Hardin-Simmons University	Texas
4.	Illinois Wesleyan University	Illinois
5.	Jacksonville University	Florida
6.	King's College	Pennsylvania
7.	Oklahoma Baptist University	Oklahoma
8.	Saint Lawrence University	New York
9.	Saint Norbert College	Wisconsin
10.	Saint Olaf College	Minnesota
11.	Saint Peter's College	New Jersey
12.	West Virginia Wesleyan College	West Virginia

Liberal Arts College I-Private

1.	Agnes Scott College	Georgia
2.	Albertus Magnus College	Connecticut
3.	Central College of Iowa	Iowa
4.	College of New Rochelle	New York
5.	Davidson College	North Carolina
6.	Goddard College	Vermont
7.	Hamilton College	New York
8.	Hampden-Sidney College	Virginia
9.	Hartwick College	New York
10.	Hobart and William Smith Colleges	New York
11.	Hollins College	Virginia
12.	Manhattanville College	New York
13.	Marymount College	New York
14.	Muhlenberg College	Pennsylvania
15.	Ripon College	Wisconsin
16.	Sophie Newcomb College	Louisiana
17.	Southwestern at Memphis	Tennessee
18.	Sweet Briar College	Virginia
19.	University of Redlands	California
20.	Washington and Jefferson College	Pennsylvania
21.	Wilson College	Pennsylvania

Liberal Arts College II-Public

1.	Johnson State College	Vermont
2.	Lander College	South Carolina
3.	Lyndon State College	Vermont
4.	University of Maine at Machias	Maine
5.	University of Maryland-Baltimore County	Maryland
6.	University of North Carolina - Asheville	North Carolina

Liberal Arts College II-Private

1.	Alma College	Michigan
2.	Aquinas College	Michigan
3.	Bethel College	Tennessee
4.	Bloomfield College	New Jersey
5.	Brescia College	Kentucky
6.	Briarcliff College	Iowa
7.	Central Wesleyan College	South Carolina
8.	Concordia College	Minnesota
9.	Finch College	New York
10.	Findlay College	Ohio
11.	Georgetown College	Kentucky
12.	Huron College	South Dakota
13.	Jarvis Christian College	Texas
14.	King's College	New York
15.	Lake Erie College	Ohio
16.	Lone Mountain College	California
17.	Lycoming College	Pennsylvania
18.	Marietta College	Ohio
19.	Mount Union College	Ohio
20.	Queens College	North Carolina
21.	Saint John Fisher College	New York
22.	Southwestern College	Texas
23.	Spertus College of Judaica	Illinois
24.	Spring Arbor College	Michigan
25.	Wayland Baptist College	Texas
26.	Wheeling College	West Virginia
27.	Whittier College	California
28.	Wilmington College	Ohio

Community Colleges-Public

1.	American River College	California
2.	Arizona Western College	Arizona
3.	Blue Mountain Community College	Oregon
4.	Bellevue Community College	Washington
5.	Brevard Junior College	Florida
6.	Bucks County Community College	Pennsylvania
7.	Cape Cod Community College	Massachusetts
8.	Charles County Community College	Maryland
9.	Clackamas Community College	Oregon
10.	Connors State College	Oklahoma

11. Cowley County Community College — Kansas
12. Crookston Technical College — Minnesota
13. Diablo Valley College — California
14. Dixie College — Utah
15. Grand Rapids Junior College — Michigan
16. Hagerstown Community College — Maryland
17. Highline Community College — Washington
18. Hutchinson Community College — Kansas
19. Iowa Lakes Community College — Iowa
20. Los Angeles City College — California
21. Manatee Junior College — Florida
22. Metropolitan State Junior College — Minnesota
23. Miami-Dade Community College — Florida
24. Middlesex Community College — Connecticut
25. Modesto Junior College — California
26. Monroe Community College — New York
27. Orange Coast College — California
28. Porterville College — California
29. Riverside City College — California
30. Rockland Community College — New York
31. Santa Fe Community College — Florida
32. Schoolcraft College — Michigan
33. Staten Island Community College — New York
34. Tacoma Community College — Washington
35. Trinidad State Junior College — Colorado
36. University of Virginia-Eastern Shore — Virginia
37. Westchester Community College — New York
38. Worthington State Junior College — Minnesota

Community Colleges-Private

1. Bay Path Junior College — Massachusetts
2. Birdwood Junior College — Georgia
3. Central YMCA College — Illinois
4. Columbia College — South Carolina
5. Cullman College — Alabama
6. Dean Junior College — Massachusetts
7. Grand View College — Iowa
8. Green Mountain College — Vermont
9. Immaculate College — Washington, D.C.
10. Keystone Junior College — Pennsylvania
11. Lees-McRae College — North Carolina
12. Marion Institute — Alabama
13. Mary Holmes College — Mississippi
14. Montreat-Anderson College — North Carolina
15. Ohio Valley College — West Virginia
16. Paul Smith's College — New York
17. Presentation College — South Dakota
18. South Texas Junior College — Texas
19. Suomi College — Michigan
20. Truett-McConnell College — Georgia
21. Union College — New Jersey
22. Villa Maria College of Buffalo — New York
23. Wesley College — Delaware

APPENDIX C
Note to Registrars

I. Sample

A. Transcripts of B.A. graduates (liberal arts; letters, arts, sciences, etc.) of 1967 and 1974 (spring or summer graduation time). B.S. graduates can be included if they do *not* have general education requirements which differ from those of B.A. graduates.

1. Majors
   a. English
   b. Biology
   c. Philosophy
   d. Physics
   e. Political Science
   f. Psychology

B. Needs and Interests

1. We are interested only in looking at courses listed on the transcripts for which the students have received credit.
2. Names, addresses, grades, admissions and counseling information are not needed. Thus, confidentiality is assured.

C. Control and Limitations

1. No students who transferred into the college or university should be included in the sample.
2. No graduates who transferred from another college or school within the institution to the college of literature, arts, and sciences should be included.
3. The sample should be limited to students who graduated within five years of matriculation.
4. However, graduates who have been granted transient credit for work done elsewhere (study abroad, off-campus work, approved summer courses elsewhere, etc.) can be included.

D. Number of Cases

_____ per major per year

II. Interpretive Information

A. We need to know the specific graduation requirements for each observation year:

1. Total hours
2. Courses in general education
3. Courses in the major

B. We need to know which courses can count as fulfilling both general education and major requirements.

APPENDIX D
Completed Form Sample

1967 _____

1974 Institution

Political science

Major

	Breadth		Depth
	1. General Education Requirements		2. Major and Other Required Courses
	Humanities	14	
	Natural sciences	8	
	Social sciences	12	
Total required hours: 72	Other	8	
	Hours: 42		Hours: 30

	Electives			
	3. Other Division Electives		4. Major Division Electives	
	(1) Humanities	(2) Natural sciences	a. Major Department	b. Other Major Division
	Dept. 1: 12	Dept. 1: 4	12	Dept. 1: 2 Dept. 2: 15 Dept. 3: 3 Dept. 4: 3
Total elective hours: 51	Hours: 12	Hours: 4	Hours: 12	Hours: 23
Total hours: 123	Total breadth hours: 58		Total depth hours: 65	

Summary

Total required hours/ total hours	58.5%	General education hours/ total hours	34.1
Total elective hours/ total hours	41.5	Total depth hours/ total hours	52.8
Total breadth hours/ total hours	47.2	Major department electives/total hours	9.8
Other division electives (1)/ total hours	9.8	Other major division electives/total hours	18.7
Other division electives (2)/ total hours	3.3	Major division electives (total)/total hours	28.5
Other division electives (total)/total hours	13.1	Major and other required courses/total hours	24.4
		Foreign language	Not required

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